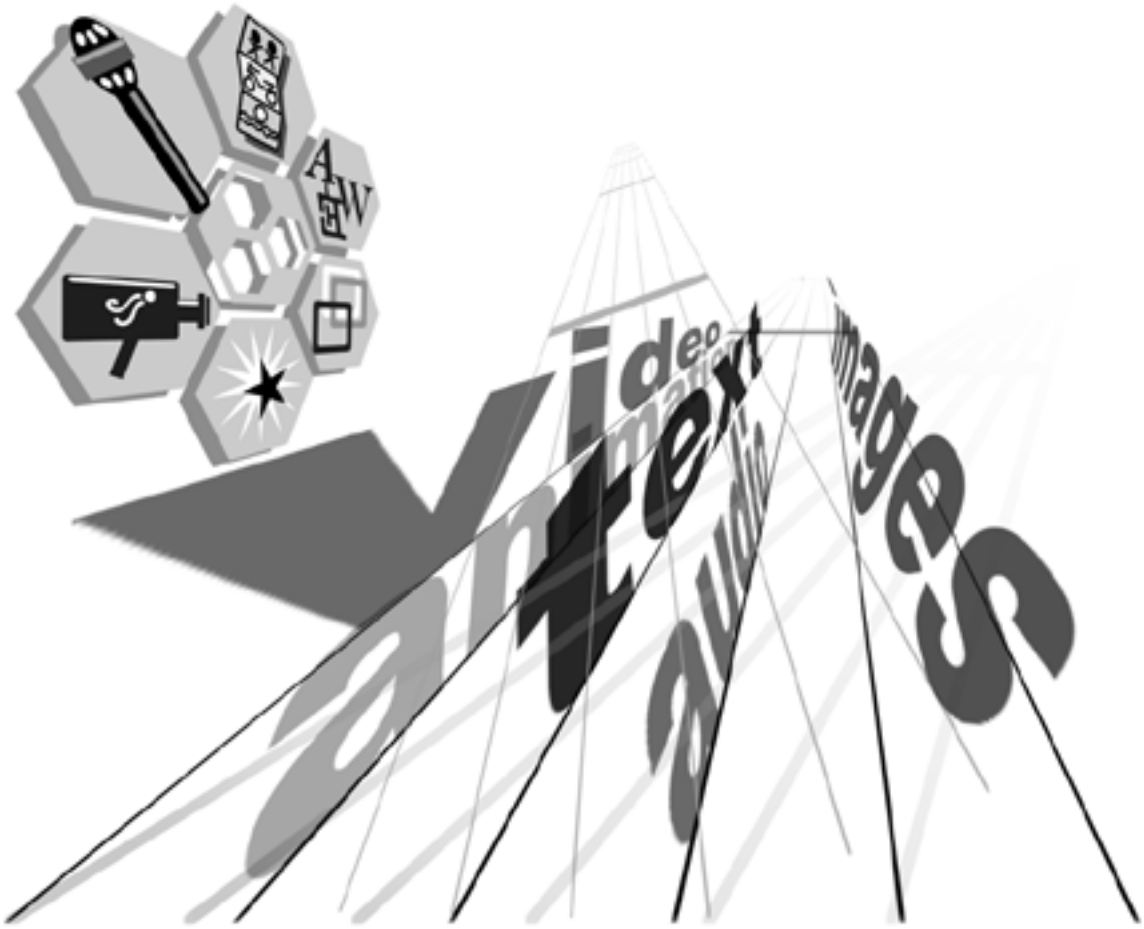
RealNetworks™

REALPLAYER PLUS™ G2 MANUAL



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ABOUT THIS MANUAL

This manual has been created to supplement the online Help that comes with your RealPlayer Plus G2, not to replace it.

Chapters 2 through 6 are designed to help you get up and running quickly with your new software.

Chapter 6: What is Streaming Media and How does it Work?, was written to help you understand streaming technology, the core of RealPlayer. Streaming is at the forefront of Web (Internet) development. Chapter 6 is written for the uninitiated, but covers a good deal of information that will make RealPlayer Plus more understandable and help you to get more out of the product.

The remaining Chapters are reference sections to help you quickly find answers to common installation problems as well as to speed your ability to work with RealPlayer (e.g., Appendix A: Keyboard Shortcuts on page 75).

RealPlayer Plus G2 has a number of short-cut or right-click menus for Windows users. This manual will not cover these specifically. Other specific Windows-only differences are called out as needed throughout this manual.

Document Conventions

Bold text indicates the names of commands, menu choices or buttons that you should select or click on your screen. **Bold** text may also indicate a URL (Internet address) that you can access through your browser.

Italics indicate new terms or ideas in this document.

`Monotype` indicates information that you must type in or that is displayed on your computer screen.

Points out a feature that is specially designed for RealPlayer Plus G2 users.

INSTALLING REALPLAYER PLUS G2

Before you install RealPlayer Plus G2, please take a moment to confirm that your computer meets the minimum system requirements.

System Requirements

PC (Windows based computer)

Minimal Computer:

- 120MHz Intel® Pentium™ processor or equivalent
- 16MB of RAM
- 14.4Kbps modem (audio only); 28.8Kbps modem (video)
- 16-bit sound card and speakers
- 65,000-color video display card (optional; required for video)
- Windows® 95 operating system
- Internet connection and web browser

Recommended Computer:

- 166MHz Intel Pentium processor or better
- 32MB or more of RAM
- 28.8Kbps or better modem
- 16-bit or better sound card and speakers
- 65,000-color or better video display card
- Windows 95, Windows 98, or Windows NT® 4.0 with Service Pack 3
- Internet connection and web browser

Macintosh® computer

Miniumum

- Mac™ OS 8.1 or later
- 32MB RAM
- 65MB virtual memory
- 604 PowerPC® (200 MHz or better)
- Internet connection
- Browser support: Microsoft® Internet Explorer 4.01 or later or Netscape® 4.05 or later or AOL℠ 4.x or later

Recommended Computer:

- Mac OS 8.5 or later
- 64MB RAM
- 65MB virtual memory
- G3 233 (or faster) PowerPC
- Internet connection
- Browser support: Microsoft Internet Explorer 4.01 or later or Netscape 4.05 or later or AOL 4.x or later

Windows 95/98 and Windows NT Installation

To install RealPlayer Plus G2

1. Close any open applications or programs that are currently running.
2. Insert the RealPlayer Plus G2 CD-ROM into your CD-ROM or DVD drive.

If RealPlayer Plus G2 does not install automatically when you insert the CD into your CD-ROM or DVD drive, you can start the installation process manually.

1. Click **Start** to open your Start menu.
2. Click **Run**.
3. Type the letter for your CD-ROM or DVD drive and then type `setup.exe` (e.g. `D:\setup.exe`). The RealPlayer Plus G2 installation should begin.

Follow the instructions that appear on your screen. If you are not connected to the Internet during installation, RealPlayer Plus G2 will attempt to connect to your Internet Service Provider (ISP) in order to electronically register your new Player.

4. At the completion of the installation, you will be shown some of the new features of RealPlayer Plus G2 and your browser will automatically connect to the PlusZone™ (**http://pluszone.real.com**), a site created by RealNetworks™ for use by RealPlayer Plus customers. If you did not connect to the Internet to electronically register your RealPlayer Plus G2 during the earlier portion of the install process, your browser will attempt to dial your Interent Service Provider (ISP) to make the connection at this time.

Additional Information

For more information see PlusZone on page 7 and on page 47.

Macintosh Installation

To install RealPlayer Plus G2

1. Double-click the RealPlayer G2 Plus Installer. The installation process will begin. Follow the instructions in each of the screens that follow.
2. When installation is complete, your web browser will launch and take you to the Plus Zone (**http://pluszone.real.com**), the web site devoted exclusively to RealPlayer Plus owners.

Additional Information

For more information see PlusZone on page 7 and on page 47.

WHERE TO GO FOR HELP AND INFORMATION

RealNetworks wants your use of RealPlayer Plus to be as easy and trouble free as possible. However, everyone needs help sometimes.

Below are several resources to assist you in resolving any problems you encounter.

Help with Using RealPlayer Plus G2

Your first source for assistance when you have a question should be this manual or your on-line Help file. To access on-line Help, select **Contents** from your **Help** menu.

If you don't find your answer in Help or in this manual, RealNetworks has several other resources available on the Web.

The PlusZone:
The PlusZone has tutorials, quick answers to frequently asked questions, manuals and supplements to the manuals, offers and content for Plus customers. The PlusZone is availabe on the Internet at:

http://pluszone.real.com

Tutorials:
RealNetworks has created several on-line streaming tutorials to help you learn about the features in your RealPlayer Plus G2. To access these tutorials select **On-line Tutorials** from your **Help** menu.

Service and Support:
Service and Support is available to answer your otherwise unanswered technical support questions. Service and Support can be reached via the Internet at:

http://service.real.com

Customer Service

Customer Service:

Customer Service is available to help you with questions about your order, delivery, or payment.

Customer Service is available from 8am - 5pm (Pacific Time), Monday through Friday, toll-free in the United States and Canada at **888-768-3248.** Outside the United States and Canada, please dial **206-674-2650.**

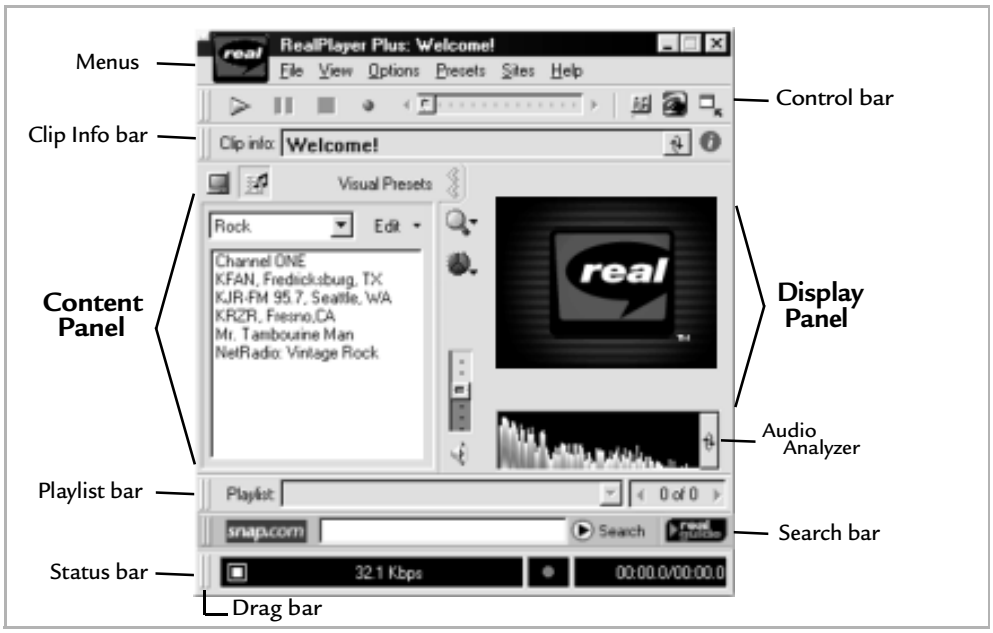
You can also contact Customer Service via the Service and Support Web pages:

http://service.real.com

REALPLAYER PLUS G2 VISUAL TOUR

The following is a quick reference for all the parts and buttons that are on your RealPlayer Plus G2. Each of the specific areas is labled in detail following Figure 3-1: Full RealPlayer Plus G2 (Visual Presets displayed). For specific details about how to use these features and tools refer to Chapter 5: New Features in G2 and Chapter 4: Quick Start as well as your online Help file available from your **Help** menu (click **Help**/**Contents...**).

Figure 3-1: Full RealPlayer Plus G2 (Visual Presets displayed)

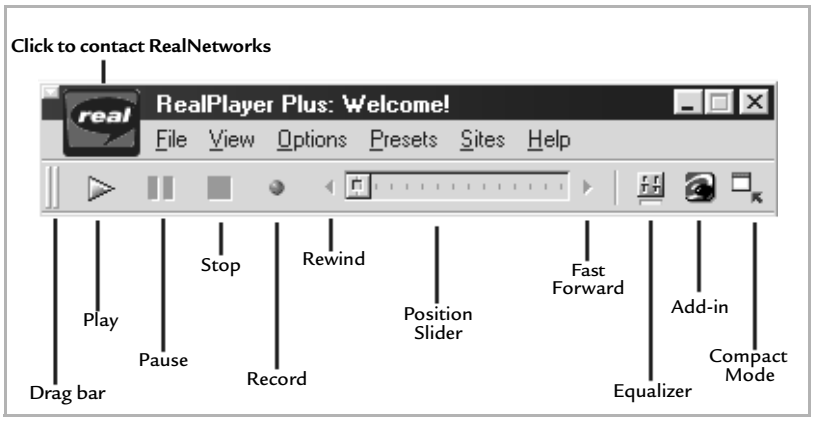


Note

The Macintosh version of RealPlayer Plus will have several minor visual differences from the above.

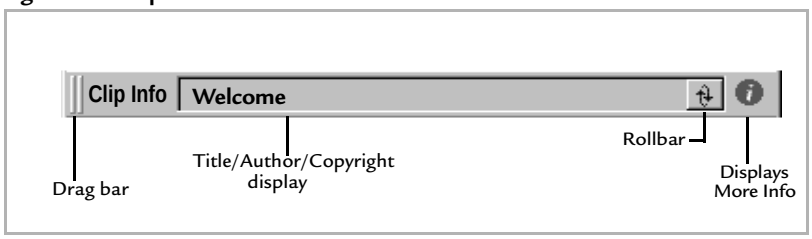
This view of the Player has all of the bars and panels available from the **View** menu open. You can change the order of how these are stacked by using the *drag bar* to move any bar higher or lower in the stack.

Figure 3-2: Control Bar and Menus



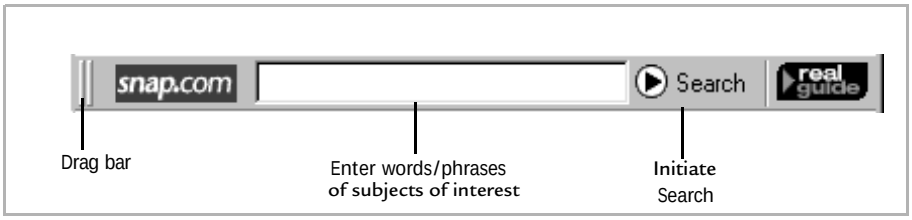
The **Control bar** allows you to navigate through the clip you are playing as well as giving you access to the **Equalizer**, **Compact mode** and any *add-ins* you may have installed (such as RealJukebox™ pictured above).

Figure 3-3: Clip Info bar



The **Clip Info bar** displays information about the current clip. By clicking the **rollbar** you can make the information scroll past again. Clicking **More Info** displays a dialog with additional information if the content provider has included any.

Figure 3-4: Search bar



Use **Search** to find content on subjects you are interested in playing. Just type in words or phrases as you would to search for a Web page and click **Search**.

Content panel (both views)

Figure 3-5: Visual Presets

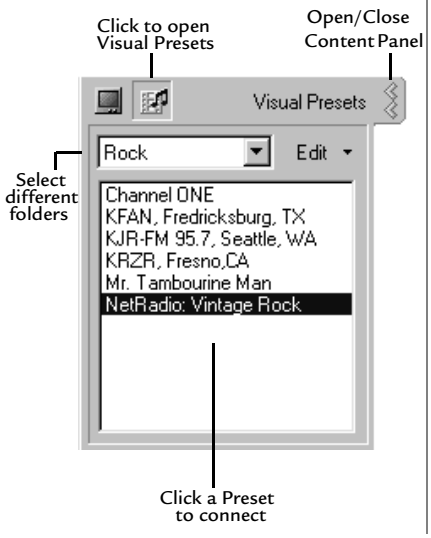
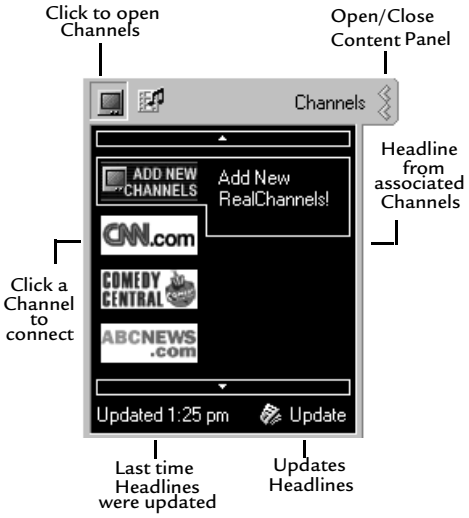
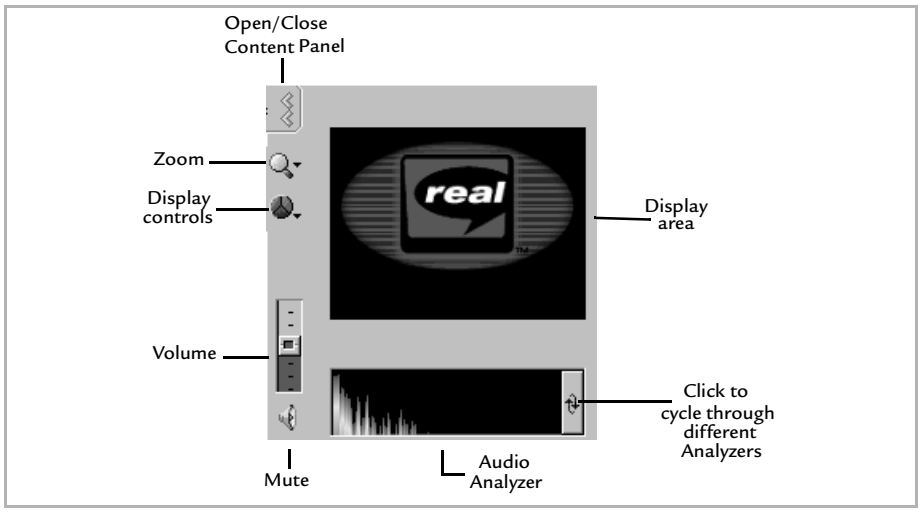


Figure 3-6: Channels



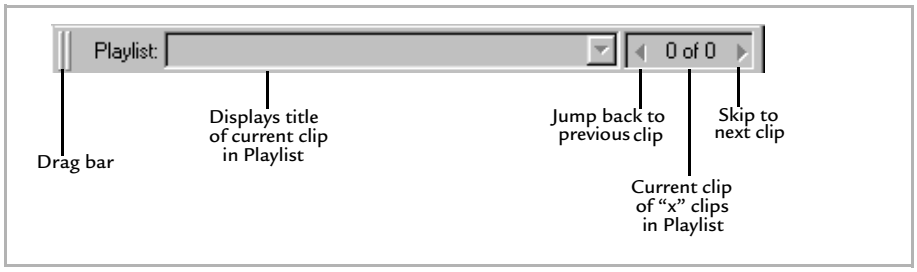
The **Content panel** offers quick access to all kinds of content. You can add to your Visual Presets™ or Channels when ever you'd like (see Chapter 4: Quick Start for more information).

Figure 3-7: Display panel



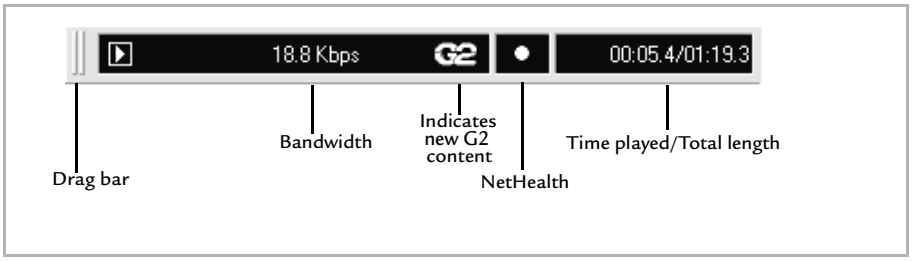
The **Display panel** is where any visual aspects of a clip will be shown. It also hosts the **Audio Analyzer** and volume, zoom, and display controls.

Figure 3-8: Playlist bar



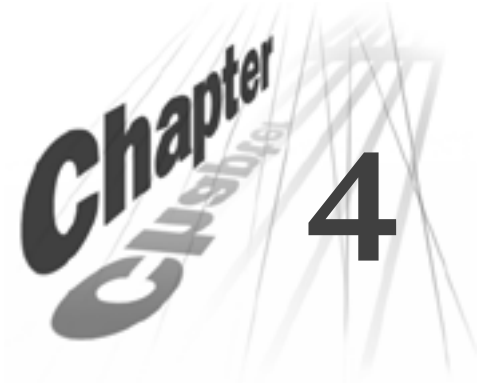
The **Playlist bar** will not be availble unless you are playing a *multi-clip* (a clip that contains other clips in sequence).

Figure 3-9: Status bar



The **Status bar** gives you quick answers about your current connection and the actual length of the clip you are playing. If you are connected to a *live* feed (e.g., a radio station) the word "live" will appear instead of a time. More detailed information about the **Status bar** is available in your on-line Help file (**Help**/**Contents...**).

QUICK START



This chapter covers basics about using RealPlayer Plus. There are many aspects to the player. More information is available in your on-line Help. To access on-line Help select **Contents** from the **Help** menu of your RealPlayer Plus G2.

So now I have this software, what do I do with it?

RealPlayer Plus G2 gives you access to multimedia both on the Internet and locally on your computer. And RealPlayer Plus G2 is more than just an extension of your browser. Visual Presets on page 16, Channels on page 18, and Scanning on page 19 give you access clips directly from your Player more easily than before and without having to start your browser and search for links to media clips.

Note

Clip is a catch-all phrase to describe anything your Player plays. A clip can be video, audio, video with audio, RealFlash™ animation, RealText™, RealPix™, any combination of these or something else completely different.

Some clips contain more than one song or video; these are called *multi-clips*. A *Multi-clip* strings together several individual clips of content, but you only have to click on it a single time to hear or see all of the media associated with that clip.

For a complete discussion of streaming media and the Internet, please see Chapter 6: What is Streaming Media and How does it Work? on page 31.

Many ways to play a clip

There are two very different ways to listen to media on your computer. The first is *local playback*. Local playback is when you use the **Open File...** option from your RealPlayer Plus G2 **File** menu.

Streamed content (see Chapter 6: What is Streaming Media and How does it Work? on page 31), is any clip that is played over a network, whether the Internet or your company network. Before you can play a clip on the Internet you have to connect to it. You can connect to streamed content by clicking on links in a web page, using the **Open Location...** option from your RealPlayer Plus G2 **File** menu or by using the newest options RealPlayer Plus has to offer to find content quickly: Visual Presets, Channels, and Scanning.

Visual Presets

Visual Presets give you easy, convenient access to your Presets.

Click the Visual Presets tab to change the view on your Content Panel (see also Chapter 3: RealPlayer Plus G2 Visual Tour on page 9).

Figure 4-1: Visual Presets tab

To listen to a Preset, just click once on its name.

To change categories of Presets

1. Click the down arrow on the category box ("Rock" in Figure 4-1).

2. Select a new category.

The **Edit** menu gives you access to **Organize Presets** (see below) as well as the ability to **Scan** (see Scanning on page 19), **Export/Import** (see Sharing Presets on page 28) and to add Presets to your categories.

To add the currently loaded clip to your Visual Presets

1. Click **Edit** on your Visual Presets tab.
2. Select **Add to Presets...**
3. Choose a category.
4. Click **OK**.

5. The Preset will be added to both your Presets and Visual Presets

Organizing Presets

Presets can be organized to fit your own needs and sensibilites. To open the **Organize Presets** dialog, select **Organize Presets** from the **Edit** menu of your **Visual Presets.**

Figure 4-2: Organize Presets dialog

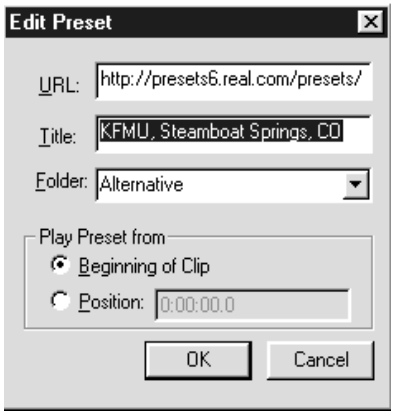
To change the name of a Preset or Presets Folder or to change which Folder a Preset resides in, you need to edit that Preset or Folder.

To Edit a Preset or Folder

1. Select the Preset or Folder.

2. Click **Edit Preset** or **Edit Folder** (the buttons will change depending on which you have selected).

Figure 4-3: Edit Preset dialog



If you edit a Folder, you will only be able to change its name. If you edit a Preset, you have a few more options (see Figure 4-3).

1. Select a new Folder or change the Title, URL or beginning position of the clip.

2. Click **OK.**

Additional Information

If you select **Save Current Place...** from the File menu or from the Edit menu you effectively create a special Preset that will begin playing from the point you selected **Save Current Place...**(see Save Current Place on page 28).

Channels

Click the Channels tab to change the view on your Content Panel (see also Chapter 3: RealPlayer Plus G2 Visual Tour on page 9).

Figure 4-4: Channels tab

Channels are one of the most exciting new features in your Player. They are similar to Visual Presets in that they provide single-click access to content. Channels, though, have additional special conveniences and abilities.

You determine your Channels line-up. RealPlayer Plus comes loaded with a starter set of Channels but you can add to or change these at any time.

To Change or Add to Your Channels

1. Select the Channel titled: **Add New Channels**
2. A presentation to tell you about new Channels and other related information will be streamed to your RealPlayer Plus from RealNetworks and your browser will connect to the RealChannels™ selection page.
3. Follow the instructions on the RealChannels page to change your lineup. Channels are available for a variety of interests: News, Entertainment, Sports, and others.

One advantage of Channels is that they provide you with up-to-date headlines from all of your selected Channels while you're connected to the Internet.

The headlines appear to the right of the Channels icons. Updates occur automatically only while you are connected to the Internet.

Tip

You can force a headline update to occur ahead of its next scheduled time by clicking **Update**. If you are not connected to the Internet, your Player will attempt to connect to your ISP when you click **Update**. To turn off automatic updating see Content Preferences on page 52.

Scanning

You may not know exactly what you are in the mood to listen to or you may not be sure exactly what type of programming the Visual Presets carry. RealPlayer Plus G2 has the ability to **Scan Presets** or to **Scan Stations** so you can find the clips that interest you. The process is similar to using the scan feature of a car radio or stereo.

Scan Presets

Figure 4-5: Scan Presets dialog

To Scan your Presets:

1. Choose **Preset/Scan Presets** from your menu.

2. Click **Start Scan**

RealPlayer Plus will Scan all of your Presets folders by default, playing each clip for the time specified in the Scan Time field.

To select a specific folder(s) to Scan or to change your Scan Time:

3. Click **More>>**

4. Select the folder(s) you want to Scan and select the Scan Time.

When you find a clip you want to listen to, click **Stop Scan**. If you simply start to Scan, `<All Folders>` is selected by default (as shown in Figure 4-5).

Warning

Closing the **Scan** dialog box is the same as clicking **Stop Scan**.

Scan Stations

Figure 4-6: Scan Stations dialog

Scan Stations is similar to Scan Presets but rather than scanning your existing Presets, Scan Stations contacts the servers at RealNetworks to get a list of current, popular, live broadcasts on the Web divided into categories.

When you find a station that you want to continue listening to, click **Stop Scan** and then add it to your Presets by clicking **Presets/Add to Presets...** so you can easily return to the clip.

Navigating through a clip

A clip remains *loaded* until you select a new clip. Just stopping a clip does not unload it. *Loading a clip* means you are connected to it or that it was the last clip you were listening to during the current session of RealPlayer Plus G2. Stopping a clip just resets it to play from the beginning. However, just because a clip is loaded does not mean you are necessarily connected to the Internet. Loading a clip only means that your Player knows where to look for it and what clip it should work with when you click any of the control buttons (see table below).

Navigation

Button	Action
	Play starts a clip from the beginning or from where you paused it.
	Pause freezes playback of the clip. If you pause a clip for several minutes, you may be disconnected from the clip. If you resume playback there may be a delay while RealPlayer reconnects to the site.
	Stop halts playback and resets the clip to the beginning.

(Table Page 1 of 2)

Navigation (continued)

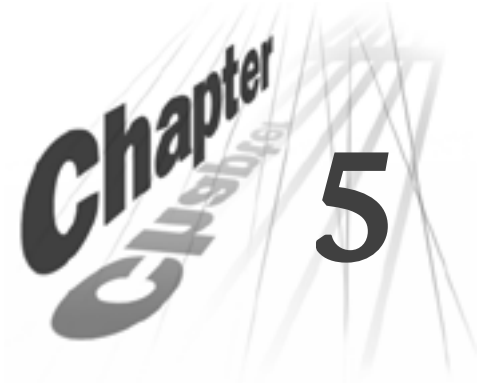
Button	Action
	The **Postition Slider** indicates where you are in the clip. Dragging the slider to a new position will let you jump around a large clip—watch the time indicator on your status bar for your location.
	The longer you hold down **Fast Forward** button, the further ahead in the clip you will jump.
	The longer you hold down **Rewind** button, the further back in the clip you will jump.

(Table Page 2 of 2)

What if I am disconnected from my ISP (Internet Service Provider)?

If you are not connected and attempt to play a loaded clip, RealPlayer Plus will try to establish a connection for you. In most cases on a Windows PC this means you will see the Dial-up Connection dialog that you see when you launch your browser or get your e-mail. For a Macintosh, most often, you will be reconnected automatically. In both cases, if you do not automatically reconnect to the Internet, simply connect manually and try to play the clip again.

NEW FEATURES IN G2



In every release of RealPlayer Plus, RealNetworks tries to improve your experience, not only in what you hear and see, but also in how you use the program. RealPlayer Plus has several new features and a completely new interface (buttons, windows, menus, etc.). This chapter will guide you through some of these enhancements.

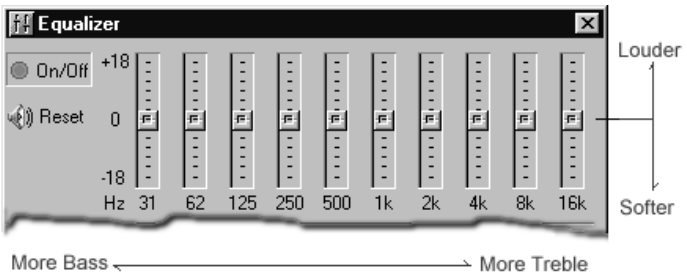
For more information about any of these features check out your on-line Help file (see the topic: What's New in G2?). There are also on-line tutorials available from your Help menu or on the PlusZone: **http://pluszone.real.com**.

Equalizer

The Equalizer is your central control for customized audio. It allows you to adjust small ranges of tones in order to improve the quality of the sound.

To open the Equalizer, click the **Equalizer button** on the Control bar (see also Chapter 3: RealPlayer Plus G2 Visual Tour on page 9).

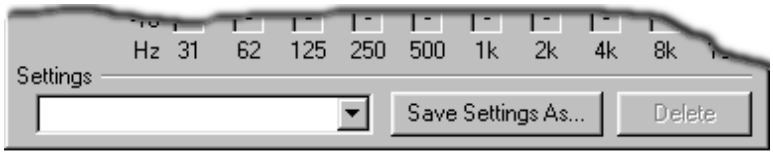
Figure 5-1: Equalizer - top half



With most stereos you only have control over two broad spectrums of sound: Bass and Treble. The RealPlayer Plus G2 Equalizer breaks this into 10 distinct bandwidths for finer control.

You can also open your Equalizer by selecting **View/Equalizer** from your menus. Your Equalizer will not affect your sound quality until you click **On/Off**. A green light beneath the button indicates that the Equalizer is on, a red light that it is off.

Figure 5-2: Equalizer - bottom half



Once you find the right positions, you can save them by clicking **Save Settings As...** and giving the setting a name. Keep in mind that different types of sounds (music or voice) may require different Equalizer settings. This is why your RealPlayer Plus already has a number of preconfigured **Settings** as a part of the Equalizer.

Tip

If you need help learning more about how to use the Equalizer (e.g., which sliders to adjust to get a specific effect), check out the tutorial on the PlusZone: **http://pluszone.real.com/tutorial60/equalizer.html**

Audio Analyzer

Figure 5-3: Audio Analyzer in two different modes

Wave mode

Spectrograph mode

The Audio Analyzer gives you four visual representations of the sound you are hearing. Wave, Spectrograph (as seen above), Bar Graph, and Spectrogram. You can cycle through the different modes by clicking the **rollbar**.

Why would you want to see what you're hearing? The main reason is practical: you can use what you see to help you adjust the sound with your Equalizer. When you adjust the Equalizer, you will see a corresponding change in the *peaks* and *troughs* on your analyzer.

Using the Equalizer and the Analyzer together can be very powerful. The Bar Graph and Spectrograph modes are the best to work with for finding the best sound quality.

The **Bar Graph** and **Spectrograph** *modes* are similar in that they indicate the level of each frequency (each narrow band of sound) by showing you a column of light. The Bar Graph has 16 indictor bars (the columns of light that jumps up and down on the Analyzer screen) while the Spectrograph has over 100. Which you use depends entirely upon your own preference.

There are many more indictor bars on both of these modes of the Ananlyzer than there are sliders on the Equalizer but the same overall range of frequencies are shown (from Bass to Treble, left to right). Because of this direct relationship, adjustments on the Equalizer will be more obvious in Bar Graph mode, for instance, than they will be in Wave mode.

Wave mode does show your frequency range, but in a vertical format to show the frequency change from a zero mark that runs horizontally across the center. Essentially, it shows how high the levels are for each frequency. *Level* is how loud or soft the frequency is. The Wave mode will be affected by the changes you make in the Equalizer, but reading it does require a little more practice. However, if you notice most of the peaks are very high (hitting the top and bottom of the Analyzer), you are probably going to experience clipping and distortion in your sound. Adjusting the frequencies that seem overpowering can correct this problem.

Spectrogram mode is a special Analyzer that displays an aggregate of the sound (the total effect of all frequencies of the sound at any point in time) in small slices that move left to right.

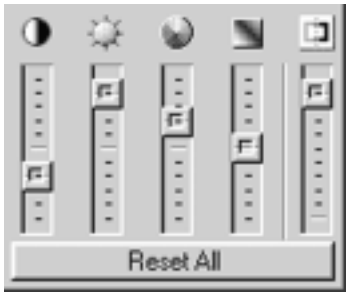
Display controls

No two computer systems are exactly the same, nor are any two computer users. While content providers (the people who put the clips out there on the Internet for you to watch) can adapt their clips to be viewed at different bandwidths (see SureStream™ on page 42) they can't adjust specifics of the picture, such as brightness, for each individual computer that might watch their clip.

Display controls give you the means to adjust the Contrast, Brightness, Color Level, Tint, and Sharpness in your Display panel **without** having to affect the rest of your screen.

1.To open the Display controls, click on the **Display controls** button next to the Display area (see Chapter 3: RealPlayer Plus G2 Visual Tour on page 9). Display controls will not be available if the loaded clip cannot be adjusted with the Display controls.

Figure 5-4: Display controls



2. Click, hold, and drag any of the sliders to a new setting. Watch the Display area to see the changes.

3. Click anywhere else on your screen or Player. The Display controls box will close.

Any settings you pick will remain until you change them again at a later time.

- **Contrast:** The visual difference between dark and light colors.
- **Brightness:** The overall amount of light in a picture.
- **Color Level:** The intensity of the colors on your screen.
- **Tint:** The amount of Red, Blue, or Green in the picture.
- **Sharpness:** How defined the edges are in the picture.

Visual Presets

Figure 5-5: Visual Presets

Visual Presets are the quickest and most convenient way to access your Presets. To see your Visual Presets, click the Visual Presets tab on the Content Panel (see Chapter 3: RealPlayer Plus G2 Visual Tour on page 9 or Visual Presets on page 16).

Visual Presets are organized by categories. Some categories have been created for you, but you can change or add to them in **Organize Presets** (see Organizing Presets on page 17).

To change categories of Presets

1. Click on the title of the current category (e.g., "Rock" in Figure 5-5: Visual Presets)

2. Select a new category from the drop-down list.
3. A new list of clips will be available.

Clicking on any individual Visual Preset, will tell RealPlayer Plus to connect to that clip.

If you aren't connected to the Internet either directly via a modem or indirectly via a local area network, RealPlayer Plus will first attempt to establish a connection for you. The connection process is no different than any other time you connect to the Internet to look at Web pages except that your browser won't open.

The clip will start to play automatically after RealPlayer Plus finds it. You can **Pause** the clip in place or **Stop** and restart the clip from the beginning (see complete list of functions in Table: Navigation on page 20).

Additional Information

See Visual Presets on page 16 for more on features and working with Visual Presets.

Channels

Channels are quick links to programming. Many take advantage of the new SMIL format (see SMIL on page 44) which offers a richer experience by using multiple types of streams at once.

Figure 5-6: Channels

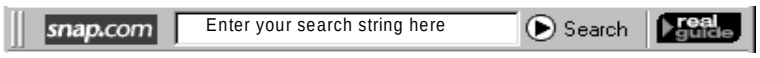
Channels are similar to Visual Presets in that they provide one-click access to content. Channels, though, have additional special conveniences and abilities (see Channels on page 18).

Your RealPlayer Plus comes loaded with a starter set of Channels but you can change these at any time by clicking **New Channels** to add more. In fact, RealNetworks is always working to supply you with new options, so check regularly to see what new Channels are available.

Search

Search helps you find the media in which you're most interested. It works just like any of the search pages you might use to find Web pages.

Figure 5-7: Search bar



Just type in words or phrases that are related to subjects of interest and click **Search**. **Search** will contact the Internet, look for clips that meet your **Search** criteria, and display a list of audio, video and other media clips in your browser. Just click on any of the resulting titles to listen to a clip.

Sharing Presets

RealPlayer Plus G2 allows you to share Presets with other RealPlayer G2 users. Sharing is accomplished through the use of Exporting and Importing Presets.

To Export a Preset

1. Select **Organize...** from the **Edit** menu on your Visual Presets panel.
2. Click **Export Preset**.
3. An Export Preset dialog will open.
4. Select a place on your hard disk to save the Preset Pack and give it a name.
5. Click **Save**. The file will have a .RNX extension.
6. E-mail the file to your friends (The file should be mailed as a simple text file if you need to designate "file-type" in your mail program).

> **Tip**
> If you want to Export an entire Folder of Presets, just select **Export "foldername"** from the **Edit** menu in your Visual Presets panel.

To Import a Preset or Preset Pack

1. Select **Import** from your Presets menu.
2. An **Import Preset** dialog will open.

3. Browse as you would with your Windows Explorer to where your mail program downloads files and select the Presets file to be imported (it will have an .RNX extension).
4. Click **Open**.
5. The Preset will appear in your RealPlayer Plus G2. In the case of an individual Preset you may find a new folder that matches the one it was exported from. Importing Presets will not overwrite your existing Presets, even if they have the same names or Folder names. Instead, same named Presets will appear in your Player, but may connect to different clips.

Save Current Place

Save Current Place is a special form of Preset that allows you to quickly save where you are in a clip so you can access the clip at a later time from the same place.

1. While listening to a clip, select **Save Current Place...** from your **File** menu.
2. An **Add To Presets...** dialog will open with the **Begin at Position** information selected for the moment that you chose to save. (You can edit this time if you wish.)
3. Select a Folder in which to save the placeholder.
4. Click **OK**.
5. When you select the Preset, the clip will start from the position it was in when you selected **Save Current Place...**

Additional Information

Save Current Place... will not be available if a clip is not capable of being searched (using fast-forward or rewind). For example you cannot use **Save Current Place...** during a live broadcast or with a Wave (.wav) file.

PerfectPlay™

PerfectPlay is the only way to guarantee that you will receive the highest quality stream (the highest bitrate) possible.

What is PerfectPlay?

PerfectPlay doesn't just buffer more of the clip before playing it for you. PerfectPlay actually adjusts the communication between your RealPlayer Plus and the RealServer™ that is sending you the clip. These adjustments allow for little or no loss of data. The result is a more complete media experience.

When should I use PerfectPlay?

Use PerfectPlay when you have a particularly bad connection or if you are finding that your video or audio is breaking up even with RealPlayer Plus working hard to adjust to your connection. When PerfectPlay is turned on, it may take considerably longer to buffer before playing the clip you've selected, but your experience will be greatly improved.

Note

PerfectPlay is not available for live feeds.

How do you start PerfectPlay?

1. Before playing the clip, select **Options/PerfectPlay** from your menus (a checkmark will appear next to **PerfectPlay**).
2. Play a clip.

Tip

PerfectPlay must be turned on before you begin playback or it will have no effect. PerfectPlay will remain on until you select it again.

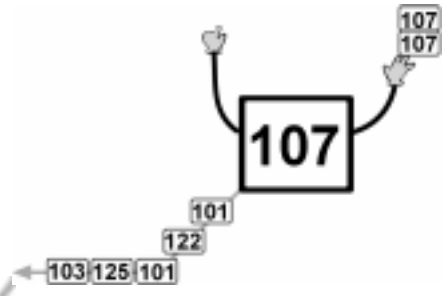
Chapter 6

WHAT IS STREAMING MEDIA AND HOW DOES IT WORK?

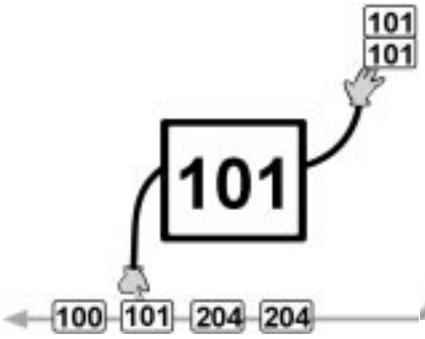
RealPlayer Plus G2 is a huge leap ahead for streaming technology on the Internet. Of course, most of that is hidden from you when you watch or listen to clips. We want you to be as excited by what's going on as we are. What follows is an explanation of how streaming media works and how RealPlayer Plus fits into the scheme of it all (a little techy but in an easy to understand way).

Networking

To understand how RealPlayer Plus works, you first need to understand *networking*. In its most simple form, networking is one computer exchanging information with another machine. This isn't much different from mailing a letter.



The first computer addresses a piece of information to another computer and then sends it across the *wire* (the cable that connects computers to one another). The second computer reads all of the messages coming by and when it sees a message addressed to it, it then takes the time to read the information inside.



Of course, when you have many computers and a great deal of information this process gets more complex. The essentials described above, however, are the same no matter the size of the network. Every computer has a unique address and all the *bits* (pieces of information) have an address to which they will eventually be delivered. (For those that know about multicast, that is discussed in Multicast on page 45. For those that don't, be patient, we'll get there).

A piece of information can be very small, such as a simple 'yes' answer, or very large, such as your favorite song. If everyone on a network were given exclusive use of the wire until the whole message was sent or received, it wouldn't work very well. Can you imagine trying to get your e-mail and having to wait while someone else listened to Beethoven's Fifth symphony? To avoid this problem, messages are broken into lots of little pieces of information that are called *packets*. On most common networks each packet is the same size and is addressed as described above.

This process may sound like extra work, but it keeps the flow of information smooth and constant with fewer bottlenecks. It is easier for a number of same-sized cars to merge onto the freeway from the same ramp than it is for a bunch of cars and an 18-wheel semi- to merge on from the same ramp. In the latter scenario, a large number of cars will have to wait as the semi- passes and then wait again while the semi- waits for room on the highway so it can finish its merge.

Handling the flow of information is a number of specialized traffic cops: routers, brouters, bridges, servers, gateways, etc. However, there are only two that you need concern yourself with: servers and routers.

Servers are computers that store information (e.g., videos, e-mail) and, in a company setting, programs (e.g., word processors). These computers *serve* the information and programs to other computers on the network to which they're connected. Every network has at least one server and sometimes several servers.

Routers scan the flow of information, read the address on each packet of information and sends each packet along the appropriate **route** (thus their name) to get to its final destination.

Internet

The Internet is not a specific entity. You can't point to one thing and say, "That's the Internet." The Internet is a collection of networks that are interconnected, or speak to, each other just as a network is a connection of servers and computers that are interconnected. Sometimes this connection is physical, such as a wire or fiber-optic connection, but sometimes the connection is via satellite or microwave. This might sound familiar. When you pick up your phone to call someone, the signal sometimes travels by wire to the person you are speaking to, but it is often sent via microwave tower or satellites, depending on how far away and where you are calling.

Some (very) quick history

[Yes you can skip this, but didn't you always wonder?]

Unlike the phone system, no one set out to create the Internet as we know it today. In fact it didn't even begin life as "the Internet", but rather as *ARPANET* (Advanced Research Projects Agency Network) in 1969.

Note

To be wholly honest, no one set out to create the American phone system as it is today either, it was a number of smaller, private companies that eventually merged into one giant company... before it became several smaller companies again.

That was then

ARPANET's original purpose was to help universities, the American military and the U.S. Defense Department contractors maintain internal communication (even during natural disasters and wars) and exchange information easily. ARPANET began life with four servers, a far cry from the eight million or more servers that comprise the Internet today.

In 1973 ARPANET became DARPANET (**Defense** Advanced Research Projects Agency Network). DARPA pioneered the research of how to best exchange information across this "internetwork." Their research led to the development of *TCP/IP (Transmission Control Protocol/Internet Protocol)* that, for the pupose of this discussion, is currently the standard way all those packets of information your computer sends out are addressed so they get to the right place all together and in the correct order.

Universities were quick to exploit this amazing infrastructure of communication. Around the core of the secure DARPA sub-system, Universities began adding additional servers and connections; the *Internet* was born. For many years the Internet was not much more than a massive e-mail exchange and bulletin-board system (posted messages people could respond to in kind).

This is now

In 1990 CERN—European Laboratory for Partical Physics, with the help of Tim Berners-Lee and the ideas of Ted Nelson, began prototyping a standardization for information sharing that became known as the World Wide Web.

Additional Information

You may recognize that the "www." in most common Internet addresses is in fact World Wide Web. To this day Berners-Lee still shapes and directs how the Web develops through the W3C (World Wide Web Consortium, **http://www.w3c.org/**).

While the Internet is a physcial entity, the WWW is more an agreed upon collection of *standards* (or *rules*) about how to address packets and how to create Web pages with *Hypertext Mark-up Language (HTML)*. Before these standards, everyone had different formatting codes, much as different word processors create files that other processors may or may not be able to read. HTML gave everyone a way to share information easily. Information began to flow at an increased rate.

Additional Information

You may have noticed that every Internet address begins with HTTP://. HTTP (Hyper Text Transfer Protocol) is another kind of standard, or *protocol*. HTTP tells your browser and computer how the HTML has been sent to it so it can read the incoming information. HTTP gives the server and your computer a common language so that the information coming in makes sense.

In the case of your RealPlayer Plus you may notice that the addresses start PNM:// (Progressive Networks Media) or RTSP:// (Real-Time Streaming Protocol) which your RealPlayer Plus recognizes and speaks. PNM is an older protocol but many clips are still around in that form. Any newer, RealPlayer Plus G2, content will have an RTSP:// before the address of the clip. Edit a Preset to see its address (see Organizing Presets on page 17) These protocols become important if you are using your RealPlayer Plus G2 at work because of firewalls (see Firewalls and Security on page 45).

Equally as important, cheaper, faster hardware became available in the mid-80's and early-90's to the public at large. The Internet exploded from a text-based system to one that contained pictures, sounds, videos and animations. Why? Simple text (words and letters) requires very little information to

reproduce. It is easy to send around even whole pages of information in relatively few packets quickly, even using slower speeds. Sound files can be small, but it depends on their quality and length. The same is true for pictures and small animations. Large animations and video have a unique problem. Both large animations and video are essentially a whole bunch of still pictures that need to be seen at a very quick rate to give the illusion of movement.

Until recently the best way to ensure that video and large animations worked well over the Internet was to download the whole file and run it from your machine at home. If you downloaded the file yourself, the download time was obvious. Sometimes, though, you would just be waiting a **very** long time for the movie or large animation to begin. During that time it was being downloaded to a temporary file on your hardrive before it started to play.

Streaming

Figure 6-1:Receiving a book page by page

Enter *Streaming*. Streaming takes large files—whether they are sound, video, animation, or other media types—breaks them up into smaller pieces and sends them to their destination. This is very similar to how computers send information across a network or the Internet in general.

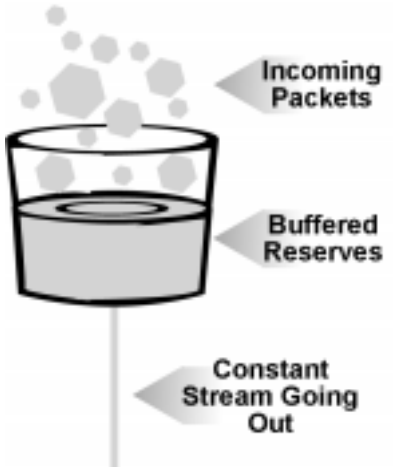
Figure 6-2: Sending a book page by page

You may be scratching your head now asking, "But you just told me that information is sent to my computer in little pieces anyway. What's the difference?" A good question.

The answer is what makes your RealPlayer so exciting. RealPlayer is able to read the file stream **as it is coming in** and begin playing it long before the rest of the file arrives. Imagine reading a novel as someone hands you page after page, rather than waiting for them to finish the whole book and handing you the entire novel at once.

Of course, if streaming only read the file and played it for you as it came in, you would have a good number of interruptions; think about how often you have to wait for a Web page to display on your screen. Now, consider that Web pages are much smaller than most media files (audio, video, animation, etc.). RealPlayer combines another technology with streaming to make playback smooth: *buffering*.

Figure 6-3: Buffering



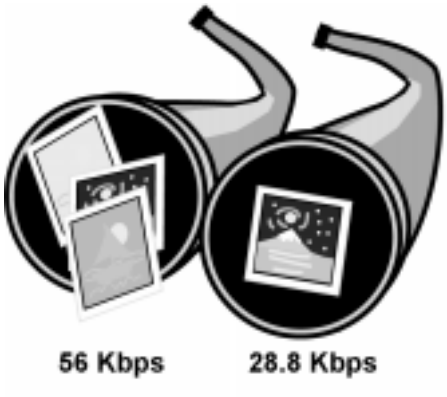
During buffering a whole bunch of packets are collected before playing them. As RealPlayer begins to play the file, it continues to collect packets in reserve. This means that even if there are minor delays in getting the information packets to your computer, your experience of the music will be continuous rather than listening to it stutter along erratically.

Imagine a cup being filled from above in fits and starts. A small hole in the bottom of the cup allows a constant stream of water to drain from the cup. As long as there is enough water backed-up in the cup, the stream will continue to flow out at a steady rate (see Figure 6-3: Buffering).

So what is a stream?

Above we explain what streaming **does**, but not exactly what it **is**. At least, not what it is for RealPlayer. Each *stream* carries specific types of information. When you watch a video the visual part, what you watch, comes to you in one stream while the sound comes in another. RealPlayer synchronizes these two seperate streams so that words come out of a newscaster's mouth when it moves or so that music crescendos appropriately when the action requires it.

Figure 6-4: Bandwidth as garden hose



Additionally, streams can be optimized for different *bandwidths*. Bandwidth is, essentially, the amount of information that can pass through a particular point of the wire in a specific amount of time. The higher the bandwidth, the greater the amount of information that can come through (see Figure 6-4: Bandwidth as garden hose). The speed of your modem, if that is what you use to connect to the Internet, determines the bandwidth of the stream that you can receive.

A 28.8kbps modem can receive, approximately, 28.8 thousand bits per second. A 56K modem is capable of receiving, approximately, 56 thousand bits per second—almost double the capability of a 28.8 modem (remember, a *bit* is a packet of information). Of course these capabilities assume that your phone connections are perfect, which few are. In other words, your mileage may vary.

You may, incorrectly, hear people refer to these speeds as the *BAUD-rate*. However, BAUD is actually how frequently the base sound (usually called a *carrier wave*) changes per second. Information is interpreted by how that sound changes. Originally, a single change, say from a high tone to a low tone, was a single bit of information. Because of improvements in compression, many more than just a single bit of information can be transmitted per change in the carrier frequency. The important point is that the higher the bandwidth you can receive, the higher the quality the sound or video will be.

Additional Information

BAUD is named for French inventor Jean-Maurice-Emille Baudot (1845-1903). Among his other accomplishments, Baudot patented in 1874 the telegraph code that eventually supplanted Morse code (Morse code fell out of general use by 1920). Baudot's new code was a 5-unit combination of on/off signals of equal duration as opposed to Morse's long/short, dash/dot. The code consisted of 32 five-unit characters covering each letter of the alphabet, punctuation and

additional machine controls. The modern version uses 7 or 8 on/off signals or "bits" that have 128 characters and is otherwise known as ASCII code now. Not simply content with improving transmission speed and accuracy, Baudot invented in 1894 a distribution system for simultaneous (multiplex) transmission of several telegraph messages on the same circuit, which is now common practice for all internetwork communication.

Where do streams come from?

Streams have to be created by someone for you to watch them with your RealPlayer Plus. This means that an original performance or broadcast was recorded and then turned into a *stream*. But how exactly does this happen? Looking at Figure 6-5: Creating an audio stream, you can see the four steps necessary for creating any kind of content.

Figure 6-5: Creating an audio stream

Step 1

The performance is *captured*. Captured simply means *recorded* or *created* in some way so that it can be changed later into a stream. With some content (e.g. animation) there is no performance, only the artist's drawings which are created. The idea, however, is the same. The originals are captured on the computer so they can be changed at a later time into a stream.

Step 2

The captured performance is edited so that the presentation you receive is what the content provider wanted to show you.

Step 3

The edited performance is *encoded* (see Encoding on page 39) into a stream. Essentially this means that the file is prepared to be streamed.

Step 4

The encoded file is placed on a RealServer (see How does streaming occur? on page 41) so your RealPlayer Plus can play it for you.

Note

This holds true for live broadcasts as well. As with live television, the performance or event is viewed by the cameras and/or microphones and is converted as it happens to a form that can be sent to you a few seconds later.

Encoding

The process of getting a file ready to be streamed is called *encoding*. Encoding takes a file and breaks it up into readable packets so it can be sent and read "on the fly" (remember Figure 6-2: Sending a book page by page on page 35?). Every clip, or every stream in a clip, is encoded for a specific bitrate (see also SureStream™ on page 42). The higher the resolution (the more information) a stream has, the higher the bandwidth (the larger the hose) it needs to get the information through to you at a useable speed.

Additional Information

Encoding is performed by special tools such as **RealProducer™** by RealNetworks available at **http://www.real.com**. RealPlayer Plus is able to read these files, but it isn't able to encode new files.

When you are playing a clip, you can see at what bandwidth a stream has been encoded by looking at your Status bar (see Figure 3-9: Status bar on page 13). The number shown is the stream bandwidth you are receiving at that moment. For a single audio stream this is straight-forward: if you are receiving a 20Kbps audio stream, that's what will show up on your Status bar. What if you are receiving multiple streams? The answer is: Stream bandwidth is additive. For example, if you are watching a Macromedia Flash animation encoded at 12Kbps that also has an audio stream encoded at 10Kbps the bandwidth will appear on the Status bar as 22Kbps (see Figure 6-7: Multiple Streams on page 43).

The *pipeline*, the bandwidth available, from your modem has a set limit, you can't make your modem work faster than it is capable of working. Content providers usually encode their streams to handle a variety of bandwidths. The higher the bandwidth, the more information, the better your experience. RealPlayer Plus uses buffering or PerfectPlay™ (see PerfectPlay™ on page 29) to overcome minor slowdowns on the Internet. But to watch a stream encoded for a 56K modem using a 28.8K modem you would have to buffer a large amont of information. Buffering means waiting and using a good deal of memory.

Codecs

If something is *encoded*, you must *decode* it in order to read it. To decode information on your computer you use a *codec*. Codec, like 'modem', is a word created by combining two actions of a process.

- **Modem**: modulator/demodulator
- **Codec**: coder/decoder

Modems convert digital information from your computer into analog information (sound waves) that can be sent over traditional phone lines. Codecs read digital information and process it into analog information for your player so you can listen to it. CD players use codecs that convert the digital information on a CD into sound waves that you hear on your speakers or headphones.

Your Player decodes each specific type of file (video, text, etc.) with a specific codec, or *plug-in*.

Additional Information

You can see what plug-ins and add-ins you have by looking on the **Upgrade** tab of your **Preferences...** (See Upgrade Preferences on page 53)

When you first install RealPlayer Plus G2 you will have several plug-ins: RealAudio™, RealVideo™, RealPix, RealText, and RealFlash. Each of these different types of media is encoded separately and sent in separate streams that your RealPlayer Plus can decode and play.

From time to time we will update one or more of these plug-ins or even add new plug-ins to enhance your RealPlayer Plus.

Tip

The latest plug-ins are always available via **AutoUpdate**. Just select **Check for Upgrade...** from your **Help** menu. Also, if you attempt to play a clip that requires an updated plug-in, you will be notified and offered to upgrade.

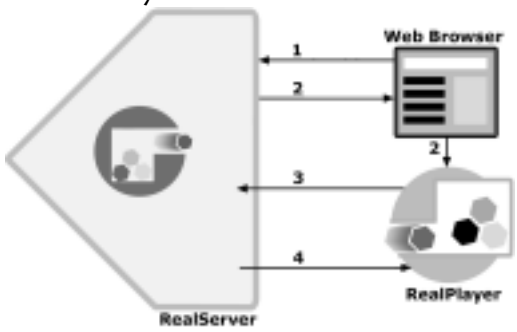
How does streaming occur?

Ok, we now have streams of data being encoded and decoded by the plug-ins and RealPlayer Plus turning all of that information into rich presentations—but where do these streams come from and how does your Player find them?

Remember, the Internet is a simply a bunch of connected *servers*. Servers *serve* information to other computers (this is a loose definition but accurate for the moment). A *clip* is any number of streams that make up a presentation. As we discussed earlier, a clip can may be made up of more than one stream, such as a video stream and a sound stream. Clips themselves can be a single entity or several clips in a row. This is why we say, *clip* or in the case of multiple presentations, *multi-clip*.

So what happens when you click on a link in a web page to hear a clip or multi-clip?

Figure 6-6: How RealPlayer connects to a RealServer



Step 1

All Web pages are stored on special servers called web servers. When you click on a link in a Web page to listen to a clip (whether live or pre-recorded) the web server sends your browser a small file that is associated with that link.

Step 2

Your browser recognizes that the file isn't another page so it checks to see what program can read it. When it recognizes that it is a RealPlayer file, it starts up your RealPlayer Plus and passes the file off to your Player.

Steps 3 and 4

The file is very small and contains only the name and location of the clip on a *RealServer*. Your Player contacts the RealServer which sends the actual stream and stays in contact with RealServer so you can fastforward or rewind or otherwise work with the clip.

RealServers are similar to web servers but rather than serving pages to browsers, they serve streams to RealPlayers. RealServers work in concert with web servers to bring multi-media to networked environments, such as the Internet.

Note

Why "networked environments" rather than Web or Internet? Because RealServers are also being used on company networks to make company-wide addresses, training, and other information easily available to employees. RealServers are available for download at **http://www.real.com**.

RealPlayer and RealServers can communicate with each other so that RealServers can pick the appropriate streams to send you. If a RealServer attempted to send a stream that was encoded at a high bitrate (e.g., T1) and you only had a 28.8K modem, you would not have a very good experience.

SureStream™

So how do you get the appropriate stream for your RealPlayer Plus when you try to play a clip? RealPlayer, as mentioned above, can talk to the RealServer that is sending the stream. In a more exact view of the process:

1. RealPlayer Plus sends the **Normal** and **Maximum** bandwidth settings from the **Connections** tab of your **Preferences...** to the RealServer serving the clip.
2. The RealServer automatically selects the streams encoded at a bitrate closest to your **Normal** setting without exceeding it. If your actual connection is faster than **Normal**, the server will upshift to a higher bitrate if it is available.

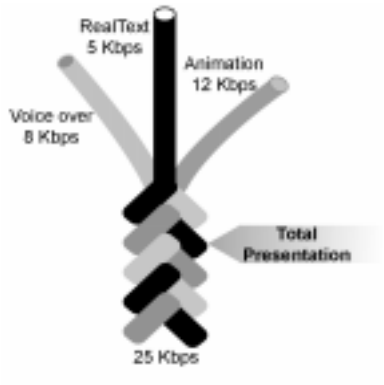
This ability to upshift and downshift is a new feature called: *SureStream*.

Prior to RealSystem™ G2, whatever bitrate you connected to initially was what you were stuck with for the entire clip, even if your connection got faster or slower. Because streams in the new RealSystem G2 can be encoded for several different bitrates within the same file, RealServer is able to intelligently pick the best possible stream for your current connection. Upshifts and downshifts will happen automatically.

Additional Information

RealSystem G2 is the catch-all name for RealNetworks' new collection of servers, tools and players. In addition to more intelligent streaming, RealSystem G2 also is capable of playing many different types of files individually and together as part of presentations (see SMIL on page 44).

Figure 6-7: Multiple Streams



SureStream becomes especially important when you are viewing some of the newer presentations that RealPlayer Plus G2 is capable of playing. When playing a SMIL presentation (see SMIL on page 44) each of the different streams for each of the components of the presentation has a bitrate associated with it. The total of all of those bitrates is the lowest connection speed you need to have to play the clip without excessive buffering. For instance, a presentation that had an 8Kbps voice-over, a 12Kbps Macromedia Flash animation component, and a 5Kbps RealText component would need at least a 25Kbps connection (8+12+5=25) to play without buffering constantly. Each stream flows into the same "river" and adds to the whole presentation that your RealPlayer Plus plays (see Figure 6-7: Multiple Streams).

Of course, RealPlayer buffers for you automatically to help you play higher bitrate streams. So even over slower connections you can experience superior quality media. The price to watch higher bitrates over slower connections is the time it takes to buffer, which is still much shorter than it would be to wait for the whole file to download.

SureStream also monitors your connection for you. If it senses too much congestion, it will downshift certain streams. Content providers can choose which streams they feel are more important to your experience (for example voice quality over animation). If SureStream senses that your connection is better than expected, it will upshift to a higher bandwidth on all or some of the streams to bring you a higher quality presentation.

SMIL

Now the fun begins. RealPlayer Plus G2 can play multiple clips presented simultaneously as a single presentation. This is done using SMIL (pronouced "smile," Synchronized Multimedia Integration Language—you see why we stick with acronyms?). SMIL is one of the newest language sets on the Web. While HTML (Hyper Text Mark-up Language) controls how Web pages present text and pictures on your computer, SMIL controls how *complex* media presentations should be streamed to and laid out within your RealPlayer Plus.

Figure 6-8: SMIL presentation

By "complex" we mean a presentation that includes more than one clip being received by RealPlayer Plus which is then synchronized with each clip being presented in a separate space. For instance, you could watch a music video (RealVideo), see the lyrics (RealText), hear the music (RealAudio), and browse stills from the concert (RealPix) all presented to you at the same time (see Figure 6-8: SMIL presentation).

In fact, the clip that introduces the new RealPlayer G2 to you after installation is a SMIL presentation that includes RealAudio, RealPix, RealText, and RealFlash. Each of these elements of the presentation is created and *encoded* (see Encoding on page 39) separately and then the lay-out is described to your RealPlayer using SMIL so it can present them together.

Additional Information

To learn more about SMIL go to:
http://www.w3c.org/AudioVideo/

Multicast

Multicast is the organic chemistry of streaming. If you had the joy of taking organic chemistry, or almost any higher level science class, the first thing you are told is: Forget everything you've been taught before; because it's wrong.

Well, we won't be quite that cruel here, but *multicasting* is a unique process in the network environment. In networking, every packet of information is uniquely addressed to a specific computer. Usually this makes a great deal of sense as each computer is more often doing something different than any other computer connected to the Internet at any one time. But what about when 25,000 people all tune in to see the same concert or sports event? Suddenly, these people are watching exactly the same thing, but each person has to have their own individual stream. This can really slow down the Internet and diminish your experience.

Multicast takes an innovative approach to this problem. What if you created one stream or a limited number of streams, and told every Player connected to the event to read the same stream by "dipping into" it? Rather than 25,000 replications of each stream, there are only a few replications which keeps congestion low and your connection more reliable and responsive.

Multicast is automatically selected by your Player if it is available for a broadcast.

Additional Information

Multicast requires special hardware on the Internet that must be provided by ISPs and other hosting services and isn't always available. Also, Multicast may not be selected if your **Transport Preferences** are set to use only one specific transport (see Transport Preferences on page 56).

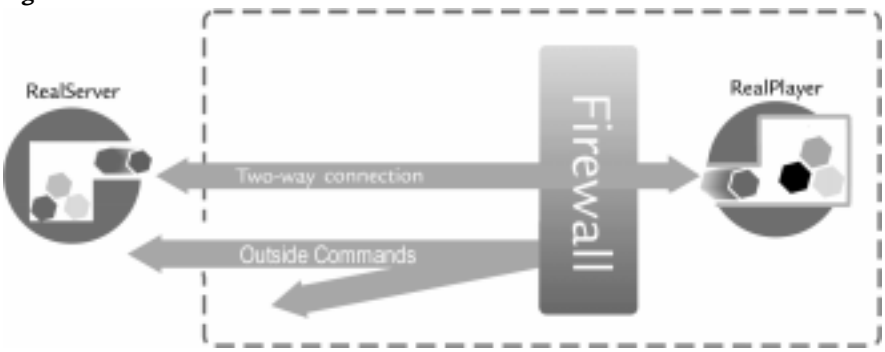
Firewalls and Security

Security is one of the biggest concerns for people connected to the Internet, whether at a business or at home. Businesses, however, have specific concerns

and specific ways of dealing with those concerns. For this reason, certain precautions have become common on networks.

When you log on to a computer at work, you almost always have to type in a username and password to gain access to the full network. This is one type of security. Password security is mainly designed to protect your machine at its present location. *Firewalls*, a different type of security, are designed to protect your computer and network from outside influences.

Figure 6-9: Firewall



Firewalls are a complex discussion, but there is one specific aspect that is of interest to RealPlayer Plus customers. In general, a firewall is a gatekeeper on the network. All outside traffic passes through the firewall when communicating with the Internet and other off-site computers. Most of this traffic is one way: the firewall will allow you to send commands out, such as requesting a Web page, but it won't allow two way communication that would give outside machines and programs control over internal machines and programs. Damage to the network and theft of information is curtailed by using this method.

However, RealPlayer Plus requires a two-way connection to function properly. Without two-way communication you cannot fast-forward through a clip or let a RealServer know that your system can accept a higher bandwidth stream. RealPlayer Plus can work through a firewall without exposing your network to any security risk, but you may need to change some of your **Preferences...** (see Transport Preferences on page 56)

Additional Information

For a much more in-depth discussion about firewalls or to solve problems when trying to use RealPlayer Plus

from work, see our web page:
http:\\service.real.com\firewall

Content: How to find it

With over eight million servers, each hosting thousands of web pages, the Internet is overwhelmingly huge. Finding content can seem daunting, but RealPlayer Plus G2 has several built-in features to help you, as well as partners who do some of the sifting for you.

Channels and Presets

Your best tools are part of RealPlayer Plus G2: **Visual Presets** and **Channels**. Both have a number of pre-loaded links to clips, both live and recorded. Additionally, both have the ability to **Scan** for content (see Scanning on page 19).

Search

Search lets you type in words or phrases of interest and looks for streaming media related to those subjects (see Search on page 28). **Search** will return a *results page* similar to those you see when you search for Web pages. You must be connected to the Internet for **Search** to function.

PlusZone

http://pluszone.real.com

Remember it. The PlusZone is a frequently updated resource designed with RealPlayer Plus owners in mind. It includes resources for quick answers to problems, add-on modules to make your RealPlayer Plus G2 even better, and lists of some of the most active Real content on the Web.

Sites Menu

The **Sites Menu** on your RealPlayer Plus offers everything from music to entertainment to sports to news. And because the menu talks to RealNetworks, we make sure that the connections are always the right ones. If the site moves, we keep track of it so you don't have to do it yourself.

Of special interest should be your RealGuide™ selections. RealGuide is a collection of pages with links to programming all over the Internet covering live and pre-recorded streaming media.

PREFERENCES

One of the most important tools you have in your RealPlayer Plus G2 is your **Preferences**. **Preferences** are settings that allow you to finely adjust the way your RealPlayer Plus works and looks to better match your own system and desires.

You can customize RealPlayer Plus by changing the settings in the **Preferences** dialog (opened from the **Options** menu). These settings control various aspects of RealPlayer Plus's functionality, such as the number of clips to remember and proxy information. Preference settings apply to all applications using RealPlayer Plus technology including RealPlayer Web page plug-ins (music and video that appears as part of a Web page rather than playing in your Player).

How to open your Preferences

Preferences are just a click (or two) away.

1. Select the **Options** menu.
2. Click **Preferences...**

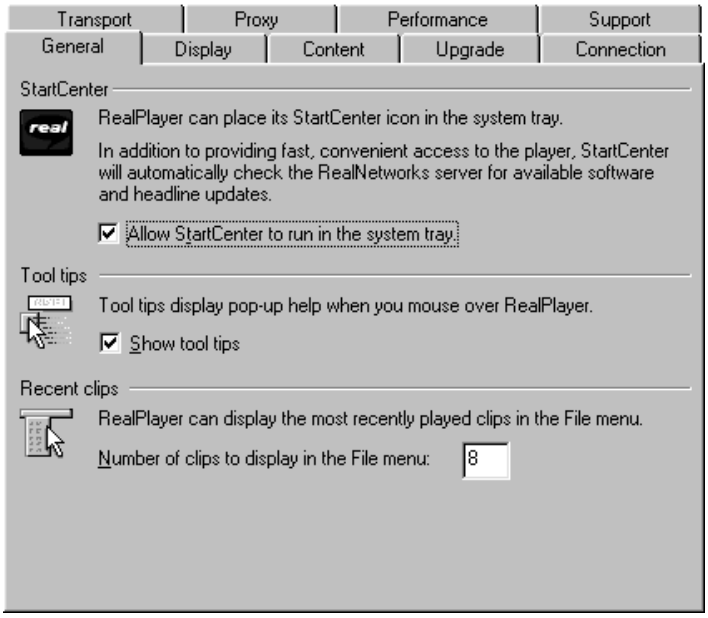
Windows Control Panel (Windows only)

On Windows based machines, several of your **Preferences** are also available from your **Windows Control Panel**. Most of these **Preferences** deal with network and Internet connectivity and support issues. All of these **Preferences** will appear on the same tabs as they do within your RealPlayer Plus and are described in the following pages. Due to differences in the operating systems, this functionality is not available on Macintosh.

General Preferences

The General tab in the **Preferences** window contains settings for the number of clips saved on the "Open Most Recent" area at the bottom of your **File** menu and other aspects of RealPlayer Plus's general functions.

Figure 7-1: General tab


Transport
Proxy
Performance
Support
General
Display
Content
Upgrade
Connection
StartCenter
RealPlayer can place its StartCenter icon in the system tray.
In addition to providing fast, convenient access to the player, StartCenter will automatically check the RealNetworks server for available software and headline updates.
Allow StartCenter to run in the system tray.
Tool tips
Tool tips display pop-up help when you mouse over RealPlayer.
Show tool tips
Recent clips
RealPlayer can display the most recently played clips in the File menu.
Number of clips to display in the File menu:
8

StartCenter [Windows only]: (Default is On) RealPlayer Plus can be launched when you start Windows and stay active in your *System Tray* so that it responds more quickly when you want to play a clip. The System Tray is opposite your Window's Start button in the same area that you see the Time and Date. The StartCenter icon also gives you quick access to Player functions and content. While you are connected to the Internet StartCenter will also keep the Headlines in your Channels tab updated as well as check for RealPlayer Plus updates even if you don't have RealPlayer Plus open.

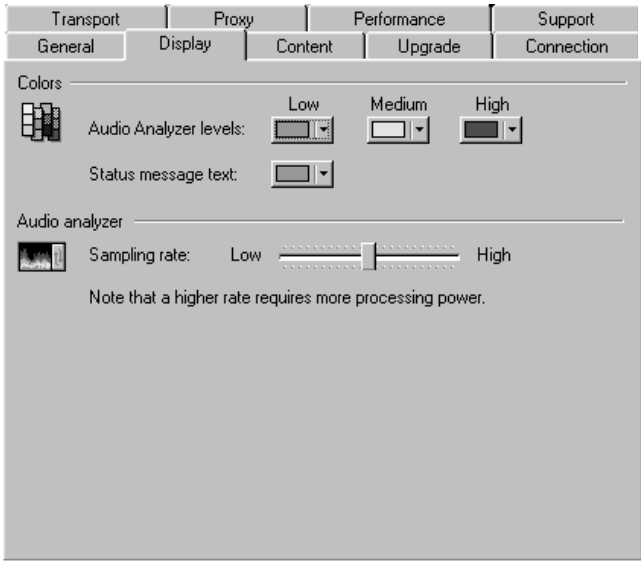
Tool Tips: (Default is On) Turns on or off Tool Tips. Tool Tips pop-up information about various controls when you hold the mouse stationary over them for a moment.

Recent Clips: (Default is 8) You can quickly replay clips by selecting your most recently played clips at the bottom of the **File** menu. This setting controls how many clips are displayed.

Display Preferences

Display Preferences change the the look of your Player.

Figure 7-2: Display tab



Colors:

Audio Analyzer levels: These choices allow you to color code the sound levels (low, medium, high) in your Audio Analyzer.

Status message text: Choose the color of the text that appears in the Status bar.

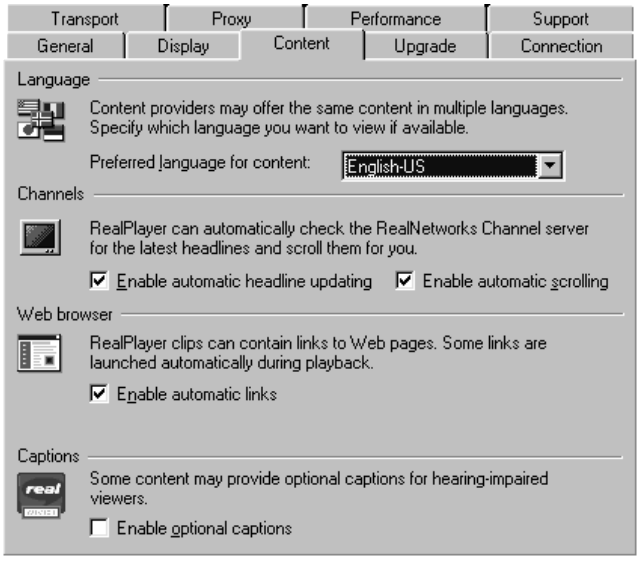
> **Note**
>
> The **"High" Audio Analyzer level** setting will also be the color for **Wave** mode.

Sampling rate:(Default is midway between "Low" and "High") Higher sampling rates provide more accurate visual information about the sound you are receiving.

Content Preferences

Content Preferences affect how content is diplayed and when it is updated.

Figure 7-3: Content tab



Language: (Default is Language initially installed) By default, RealPlayer Plus will display any text components in the language of the version you installed. If you prefer another language be displayed by content that provides more than one language, specify your preference here from the drop-down list.

Channels: (Default for both is On) Enable or disable the automatic updating of your Headlines and enable or disable the automatic scrolling of Headlines in your Channels tab.

Headlines will only be updated while you are conneced to the Internet. The Player will not attempt to establish a dial-up connection solely for the purpose of updating your headlines even if you have automatic updating enabled.

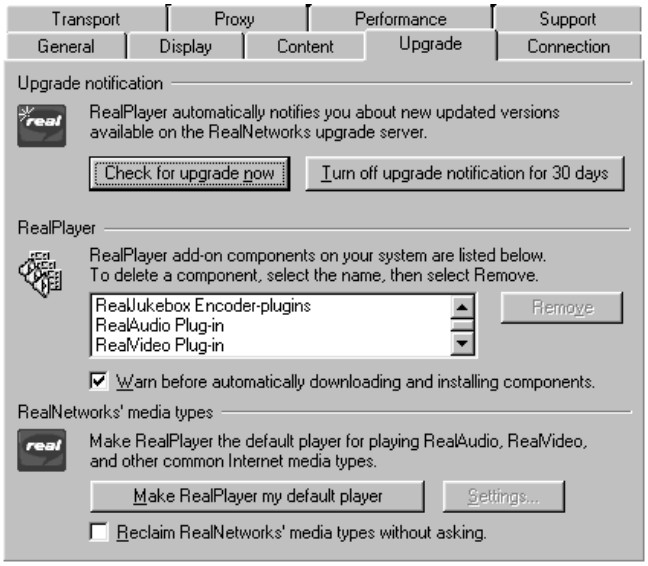
Web browser: (Default is On) Some clips contain synchronized multimedia events that display Web pages or images in your browser while you are playing a clip. This setting controls whether RealPlayer Plus applications enables these events.

Captions: (Default is Off) When checked, RealPlayer Plus will display closed captioning when it is provided. If the clip has been authored without captioning enabled, this setting will have no effect.

Upgrade Preferences

Using the Upgrade tab of the Preferences window, you can customize how often the application queries RealNetworks to check for available upgrades, change your installed components, and correct file-type issues.

Figure 7-4: Upgrade tab


Transport
Proxy
Performance
Support
General
Display
Content
Upgrade
Connection
Upgrade notification
RealPlayer automatically notifies you about new updated versions available on the RealNetworks upgrade server.
Check for upgrade now
Turn off upgrade notification for 30 days
RealPlayer
RealPlayer add-on components on your system are listed below. To delete a component, select the name, then select Remove.
RealJukebox Encoder-plugins
RealAudio Plug-in
RealVideo Plug-in
Remove
Warn before automatically downloading and installing components.
RealNetworks' media types
Make RealPlayer the default player for playing RealAudio, RealVideo, and other common Internet media types.
Make RealPlayer my default player
Settings...
Reclaim RealNetworks' media types without asking.

Upgrade notification: (Default is On) If on, RealPlayer periodically contacts RealNetworks *in the background* to determine if a newer version or newer components are available for you RealPlayer Plus. If an upgrade is available, RealPlayer Plus offers to download the new files. All new components will be authenticated and installed automatically.

RealPlayer components: Listing of the different components and the files you can use with your RealPlayer (e.g. AVI, WAV, etc.). To remove a component highlight it and click **Remove**.

Warn before installing new components: (Default is On) If checked, RealPlayer will alert you before continuing with the installation of any new components or updates. If unchecked, RealPlayer will automatically begin installation of any new components that it downloads.

Reclaim RealNetworks media types without asking: (Default is Off) When programs are installed, certain *file-types* are *associated* with that program. A file's "type" is described at the front of every file and alerts your computer

[*continued on next page*]

to what programs can use the file (see What types of files can RealPlayer Plus play? on page 72 to see what file-types RealPlayer Plus uses). Some programs can use other program's file-types (e.g., word processors can can often read other word processor documents). When you click on a link or a file, Windows checks to see what program is associated with that file-type and automatically launches that program (e.g., double-clicking on a .ram file should launch RealPlayer Plus and begin to play a clip).

Occassionally the installation of a new program causes these file-types to no longer be associated with RealPlayer Plus. Clicking **Make RealPlayer my default player** will re-associate RealNetworks file-types with your RealPlayer Plus.

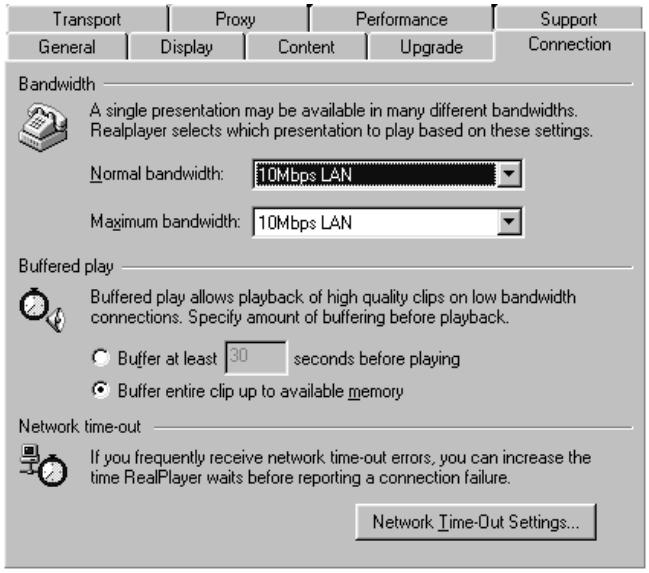
Additional Information

Often file-type and file extension (e.g., .ram) can be used interchangably, but in actuality, extensions are not always an indication of file-type. File-type is determined by code in the file *header*, that portion of the file that is read first.

Connection Preferences

The Connection tab in the Preferences window contains information about the speed of your connection and how long RealPlayer Plus will continue to try to connect before telling you it can't.

Figure 7-5: Connection tab


Transport
Proxy
Performance
Support
General
Display
Content
Upgrade
Connection
Bandwidth
A single presentation may be available in many different bandwidths. Realplayer selects which presentation to play based on these settings.
Normal bandwidth:
10Mbps LAN
Maximum bandwidth:
10Mbps LAN
Buffered play
Buffered play allows playback of high quality clips on low bandwidth connections. Specify amount of buffering before playback.
Buffer at least
30
seconds before playing
Buffer entire clip up to available memory
Network time-out
If you frequently receive network time-out errors, you can increase the time RealPlayer waits before reporting a connection failure.
Network Time-Out Settings...

Bandwidth: (Default is set during installation) RealPlayer Plus automatically selects which content can be delivered in real-time over your connection.

Normal: Automatically determined by the answers you give during installation. If this setting is too high you will experience extended buffering as RealPlayer Plus attempts to play clips intended for higher (faster) bandwidths. For instance, if you have a 28.8K modem but routinely connect only at 20Kbps, you should probably set this to 19.2Kbps.

Maximum: Gives RealPlayer Plus the upper limit for streams it should "upshift" to through SureStream (see SureStream™ on page 42).

Buffered Play: (Default is Entire Clip) Determines how much RealPlayer Plus should buffer before beginning to play in PerfectPlay mode.

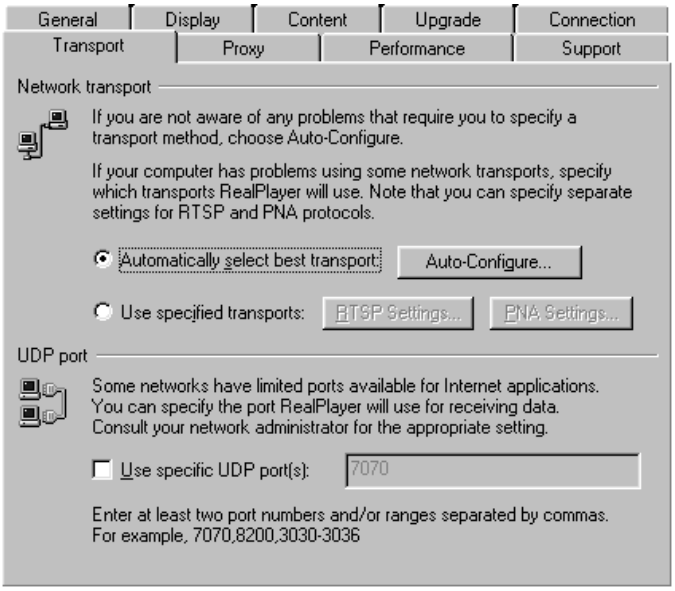
Network time-out: (Default is 20 sec. for Connection and 90 sec. for Server) These settings determine how long RealPlayer Plus will continue to try to connect to a server. If this time is exceeded, your Player will tell you it cannot connect or that it has lost its connection.

Transport Preferences

The Transport tab in the Preferences window allows you to customize your network connection for RealPlayer Plus. Most likely, if you are connecting to the Internet through a commercial Internet Service Provider (ISP), you will not have to set any of the items on this tab.

The description of these preferences assumes a basic knowledge of Internet protocols and firewalls. For more information about firewalls, refer to our Web site at: **http://service.real.com/firewall/**

Figure 7-6: Transport tab


General
Display
Content
Upgrade
Connection
Transport
Proxy
Performance
Support
Network transport
If you are not aware of any problems that require you to specify a transport method, choose Auto-Configure.
If your computer has problems using some network transports, specify which transports RealPlayer will use. Note that you can specify separate settings for RTSP and PNA protocols.
Automatically select best transport:
Auto-Configure...
Use specified transports:
RTSP Settings...
PNA Settings...
UDP port
Some networks have limited ports available for Internet applications. You can specify the port RealPlayer will use for receiving data. Consult your network administrator for the appropriate setting.
Use specific UDP port(s):
7070
Enter at least two port numbers and/or ranges separated by commas. For example, 7070,8200,3030-3036

Network transport

Auto-Configure... : (Default) Use this setting if you are not aware of any problems that require you to specify a transport method. RealPlayer Plus will automatically configure itself to use the most efficient mode of transport for your connection.

Use specified Transports: RTSP, PNM. Use this setting if your computer has problems using some network transports. (Consult your network administrator for the appropriate settings.)

Select **Use specified transport...** and then click either **PNM** or **RTSP** to access the Specify Transports dialog (described on next page) for each protocol.

[*continued on next page*]

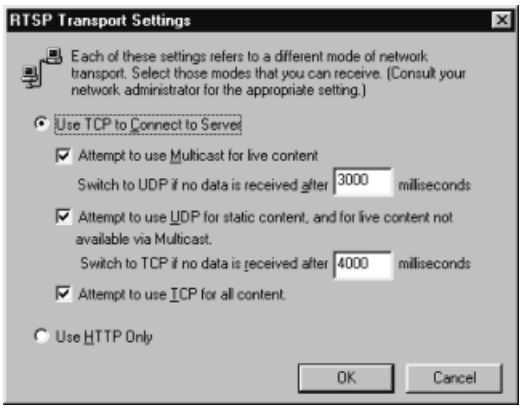
UDP port: (Default is Off) Some networks have limited ports available for Internet applications. This setting controls which port RealPlayer applications use for receiving data. (Consult your network administrator for the appropriate settings.)

Additional Information

The **UDP port** setting does not affect TCP packets, which can only be received through Port 7070.

Specify Transports dialog

Figure 7-7: RTSP Transport Settings


RTSP Transport Settings
Each of these settings refers to a different mode of network transport. Select those modes that you can receive. (Consult your network administrator for the appropriate setting.)
Use TCP to Connect to Server
Attempt to use Multicast for live content
Switch to UDP if no data is received after 3000 milliseconds
Attempt to use UDP for static content, and for live content not available via Multicast.
Switch to TCP if no data is received after 4000 milliseconds
Attempt to use TCP for all content.
Use HTTP Only
OK
Cancel

The Transport Settings dialogs allows you to select the different modes of network transport that you can receive. You can have different settings for PNM and RTSP. **(Since these settings are network specific there are no meaningful defaults. Consult your network administrator for the appropriate settings.)**

Use TCP to Connect to Server: Select this option if you want RealPlayer Plus to use TCP for the initial connection to RealServer.

Attempt to use Multicast for live content: Select this option if you want RealPlayer Plus to attempt to receive live content through Multicast.

If you select this option, indicate how many milliseconds the Player should attempt to use this type of transport before switching to UDP.

Attempt to use Multicast for static content: Select this option if you want RealPlayer Plus to attempt to use UDP for static content and live content not available via Multicast.

[*continued on next page*]

If you select this option, indicate how many milliseconds the Player should attempt to use this type of transport before switching to TCP.

Attempt to use TCP for all content: Select this option if you want RealPlayer Plus to use TCP for all content.

Use HTTP Only: Select this option if you are behind a firewall and cannot receive data through TCP. All data will be streamed through HTTP.

Warning

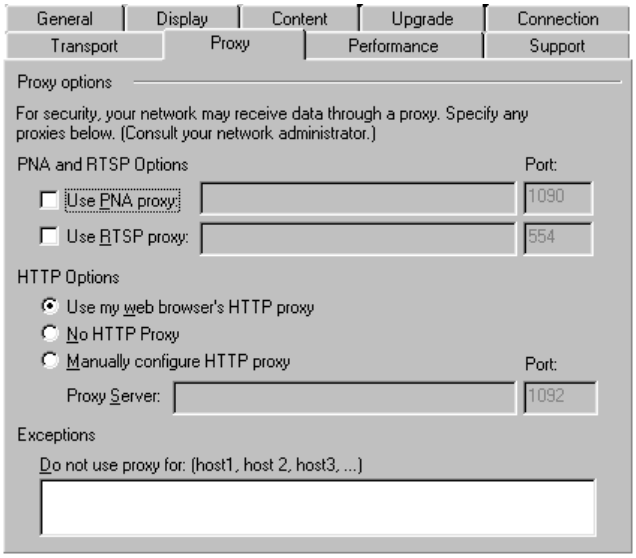
You may not be able to receive some content if you select the **HTTP Only** option.

Proxy Preferences

A proxy is a server that acts as an intermediary between a company's protected LAN (local area network) and the Internet (see Firewalls and Security on page 45). RealPlayer Plus can be configured to work with different proxy servers by setting the appropriate preferences. **(Since these settings are network specific there are no meaningful defaults. Consult your network administrator for the appropriate settings.)**

For more about proxies and firewalls see: **http://service.real.com/firewall/**

Figure 7-8: Proxy tab



PNA and RTSP Options: Click to select either or both of these proxies if RealPlayer Plus should use them to connect to the server. For each applicable proxy enter the appropriate domain name or IP address of the server and port that RealPlayer Plus should use to communicate with the proxy server.

HTTP Options: (Default is "No HTTP proxy") Select appropriate HTTP proxy. You can have different proxy information for HTTP than you have for PNA or RTSP.

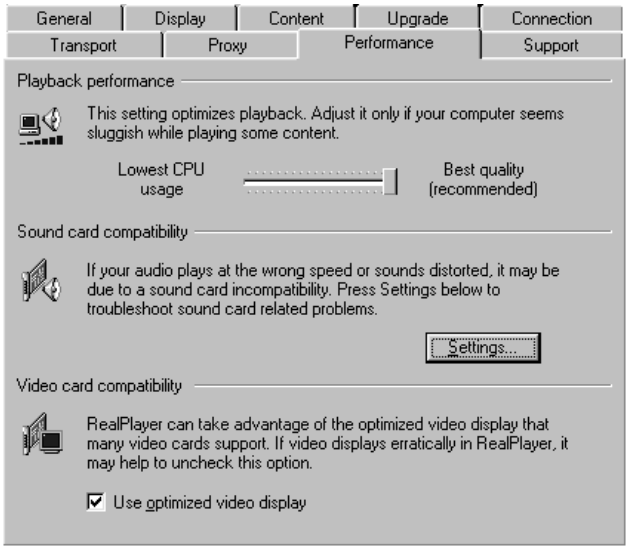
Exceptions:

Do Not Use Proxy for: (host1, host2, host3...) You can exclude certain local hosts (domain names or IP addresses) with which you do not need to communicate using the proxy server. Enter these hosts in this field. This field is only available if you have enabled one of the the **Use proxy** options.

Performance Preferences

Settings on the Performance tab tailor system compatiblity. In most cases you should not change them. However, you may find them helpful if you have an older system or if you are experiencing specific video problems (see Video/Display Problems on page 63).

Figure 7-9: Performance tab


General
Display
Content
Upgrade
Connection
Transport
Proxy
Performance
Support
Playback performance
This setting optimizes playback. Adjust it only if your computer seems sluggish while playing some content.
Lowest CPU usage
Best quality (recommended)
Sound card compatibility
If your audio plays at the wrong speed or sounds distorted, it may be due to a sound card incompatibility. Press Settings below to troubleshoot sound card related problems.
Settings...
Video card compatibility
RealPlayer can take advantage of the optimized video display that many video cards support. If video displays erratically in RealPlayer, it may help to uncheck this option.
Use optimized video display

Playback performance: RealPlayer Plus uses this setting to optimize the performance of clip playback. Change this performance setting only if your computer seems sluggish or has problems while playing content.

Sound card compatibility [Windows only]: Modify sound card settings to overcome audio problems.

Settings...

Disable 16-bit sound (use 8-bit only): Use this setting if you have an older sound card and clips sound scratchy or distorted.

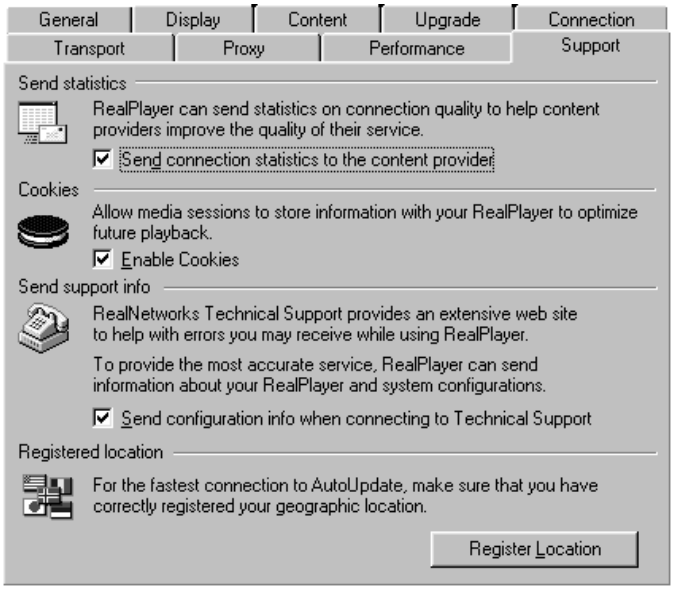
Disable custom sampling rates: Use this setting if clips play at the wrong speed or sound scratchy or distorted.

Video Card Compatibility [Windows only]: Some video cards are not compatible with RealPlayer Plus's optimized video. (See Why is my video distorted or not displaying at all [Windows only]? on page 65 for a list of symptoms and solutions or come to **http://service.real.com/** for the latest information.)

Support Preferences

Support Preferences determine how much information you share with content providers.

Figure 7-10:Support tab


General
Display
Content
Upgrade
Connection
Transport
Proxy
Performance
Support
Send statistics
RealPlayer can send statistics on connection quality to help content providers improve the quality of their service.
Send connection statistics to the content provider
Cookies
Allow media sessions to store information with your RealPlayer to optimize future playback.
Enable Cookies
Send support info
RealNetworks Technical Support provides an extensive web site to help with errors you may receive while using RealPlayer.
To provide the most accurate service, RealPlayer can send information about your RealPlayer and system configurations.
Send configuration info when connecting to Technical Support
Registered location
For the fastest connection to AutoUpdate, make sure that you have correctly registered your geographic location.
Register Location

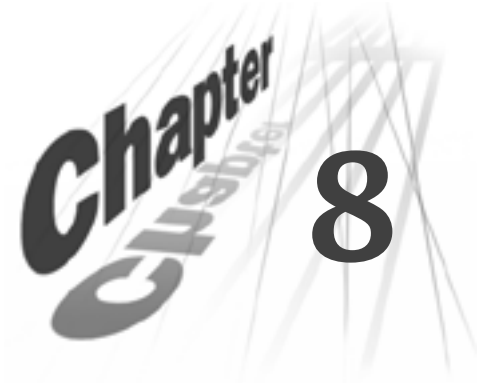
Send statistics: Statistics help content providers refine their methods and improve their quality. If you do not wish to share your information with content providers, do not check this box.

Cookies: (Default is Enabled) By storing informaion about previous media sessions, conent providers can better customize your experience and provide better connectivity.

Send support info: If selected, RealPlayer Plus will send information about your computer to our support database in order to provide better error information and possible solutions to any problems that may arise. If you do not check the box, you may only receive general error messages.

Registered location: Use this setting to change your physical location in our registration database. By having accurate information, RealNetworks can connect you to the nearest possible server for upgrades (see Figure 7-4: Upgrade tab on page 53) and other connections.

TROUBLESHOOTING



Everyone has problems on occasion. Fortunately, most problems have occurred before and we have answers for them. Below are some of the most common confusions and issues you may run into when running RealPlayer Plus G2. If you still have unanswered questions, please visit **http://pluszone.real.com/** or **http://service.real.com** for the most up-to-date information. (See also Help with Using RealPlayer Plus G2 on page 7).

Video/Display Problems

How do I get Full Screen to work [Windows only]?

If you are having problems with Full Screen (e.g., only a black screen appears), make sure that you have the following installed on your machine:

Microsoft DirectX® with DirectDraw™ (v5.0 or later)

You can download the most recent version and installation instructions from RealNetworks' DirectDraw Support page:

http://service.real.com/fullscreen/default.html

When you install DirectX, you must choose to upgrade your video drivers.

Updated video drivers

You can usually find the latest drivers on the website of the company that manufactured your video card. By upgrading your video drivers you may lose some functionality provided by your old drivers. Your video card manufacturer is solely responsible for the scope of these functions.

As a convenience we offer links to some of the most common video card manufacturers on the RealNetworks' video driver support page:

http://service.real.com/fullscreen/driverlink.html

Why is my video playback ugly?

RealPlayer Plus shows video in whatever color resolution you have your system set to display. If the display settings in your Control Panel are set to 256 colors, you may not get good results trying to view video clips. You should increase your screen resolution to 16-bit (thousands) or 24-bit (millions) color.

To change your screen resolution in Windows:

1. Choose **Settings/Control Panel** from your **Start** button.
2. Double-click **Display**.
3. Click the **Settings** tab.
4. Change the **Color palette** setting to **High Color (16-bit)** or **True Color (24-bit)**.

   Warning

   You may not be able to go to a higher color setting depending on the desktop area you have selected and your video card. Windows will only allow you to select choices that are appropriate for the installed video driver

5. Click **Apply**. You may have to reboot your computer to have the changes take effect; Windows will inform you if you do.

   Additional Information

   Avoid using Zoom (Figure 3-7: Display panel) if you do not have a high bandwidth connection or very good connection.

To change your screen resolution on Macintosh:

1. From the Apple Menu, select **Control Panels**.
2. Open the **Monitors & Sound** control panel.
3. Change Color Depth to **Thousands** or **Millions**.
4. Change Resolution to **800x600** or better.

Why is my video distorted or not displaying at all [Windows only]?

To deliver the best video in the fastest way possible, RealPlayer Plus uses the latest optimized video protocols. Not all video cards or their drivers will function properly with this optimized approach. If a video card or its drivers are incompatible you may see unexpected results (see The Symptoms immediately below).

The Symptoms

Incompatibility with optimized video usually manifests itself in one of the following four ways:

1. You do not see any video in your RealPlayer Plus Display panel. All you see is an empty, magenta square.
2. You do not see any video in your RealPlayer Plus, only a snowy picture that moves.
3. You see video in your RealPlayer Plus but it has a green tint to it and may be distorted so that you only see stripes of the video or only part of an enlarged picture. The overall effect is as if you were looking through a hole at a larger screen.
4. You see video in your RealPlayer Plus but it is stretched vertically or horizontally in only one direction. The picture distorts into a wide, flat picture or a tall, thin one.

If you are experiencing one, or more, of these symptoms, confirm the problem by using the test below to be sure that optimized video is the issue and not some other conflict.

The Acid Test--Identifying the Problem

If you are seeing any or all of the above symptoms, do the following to make sure it is an optimized video issue:

1. Connect to a video clip or click **Play** to start playing a loaded video clip.
2. Wait until the video is exhibiting one of the above symptoms.
3. Click and hold on the menu bar of your RealPlayer Plus.
4. Drag your RealPlayer to a new location on your desktop.

If you saw the video playing properly while you were dragging your RealPlayer Plus but the problems reappeared when you stopped dragging your RealPlayer Plus (or shortly after you stopped dragging it):

1. Select **Help/Check for Upgrade...** from your menus.
2. Choose **Driver List Update** if it is available (if it is not available you have the latest update and should proceed to the section below).
3. Click **OK**.
4. AutoUpdate will download a small (about 5K) file and automatically install it.
5. Attempt to play the video that was giving you trouble again. If it still does not display correctly, please proceed to the instructions below.

If AutoUpdate does not solve your problem:

1. Select **Options/Preferences...** from your menus.
2. Go to the **Performance** tab (see Performance Preferences on page 60).
3. Deselect (uncheck) **Use optimized video display**.
4. Click **OK**.
5. Attempt to play the video again.

If you still do not see the video playing properly, then other issues may be affecting your RealPlayer Plus. Contact Technical Support at **http://service.real.com** for access to the RealPlayer Plus Frequently Asked Questions (FAQ) and other up-to-date and technical information.

If you update or change your video driver or video card, you should reselect **Use optimized video display** to see if it works properly. If it does not, follow the instructions above again to solve the conflict.

Audio Problems

Why is my audio playback poor?

Playback quality varies depending on available bandwidth and how the file you are playing was encoded. If the quality is garbled, choppy, or skipping, use the following guidelines to isolate and correct the problem.

If the quality was poor when the **firstrun_plus.smi** or **Welcome.smi** file played at the end of the RealPlayer installation, you could have a sound card conflict. Try changing the settings on the **Performance** tab (see Performance Preferences on page 60).

If the quality was good when the **firstrun_plus.smi** or **Welcome.smi** file played at the end of the RealPlayer Plus installation, but is bad when you try to play a clip from a web, use the **View/Statistics** to check for lost packets (see your RealPlayer Plus G2 Help file for more information on the **Statistics** pane). If the packet loss is high, it may be due to a busy network. If this is the case you should also see the **net health** indicator blinking yellow or red on your Status bar. RealPlayer Plus users can select **PerfectPlay Mode** from the **Options** menu and try to play the clip again or connect to the site at a later time.

If the quality was good when the **firstrun_plus.smi** or **Welcome.smi** file played at the end of the RealPlayer installation, but sounds bad for every clip that you try to play on the Internet, complete the following steps.

If the playback quality is poor on every site:

1. Check the actual modem connection speed. This speed may be shown in the lighted display for external modems or through an information window if you have an internal modem (check the user manual for your modem). Sometimes service providers use a lower rate connection speed such as 14.4Kbps, so, even though you are dialing in to your ISP on a 28.8Kbps modem, you are only receiving data at 14.4Kbps.
2. If you are using an external modem with a Windows PC and the **Statistics** window shows minimal packet loss (10% or less), your system may have a problem with the speed at which packets are transferred between the modem and your computer. Try setting the port speed higher (at least twice the modem speed).
3. Contact RealNetworks' Technical Support at **http://service.real.com**

Why doesn't my RealPlayer Plus have a Volume Control?

In Compact Mode the Volume Slider changes to a pop-up control.

Click to pop-up the volume slider. When you click off of the slider, it will disappear again, but your setting will remain active.

As in Normal Mode, the Mute button is available next to the volume control.

Why can’t I hear anything?

RealPlayer uses the *Wave interface* for Windows to get the sound out to your speaker. In some cases this may have been accidentally turned off by other programs or users.

The Wave interface Volume Control

In the Windows system tray (the area that shows you the date and time opposite the **Start** button) you may see a **Volume Control** (a small icon that looks like a speaker). Double-click on the icon to open the control applet.

Make sure that the Wave slider is not muted and is set above zero *and* that the **Master Control** is turned **On**.

Connection Problems

How do I configure my browser for RealPlayer Plus content?

Windows

With most browsers, the RealPlayer Plus installation configures the browser to automatically support streamed playback through your new RealPlayer Plus. If you change your browser and it no longer recognizes files, the easiest fix is to reinstall RealPlayer Plus (select **Programs/Real/RealPlayer Plus G2 Setup** from your Windows **Start** menu).

To manually configure your browser, do the following:

1. Open the **Options**/**Preferences...** or **Settings** menu (the name depends on your particular browser).
2. Select **Helper Applications** or a similar option.

   Look for **audio/x-pn-realaudio** in the File-type list. If that choice exists, select it. Otherwise, click **New Type**.

   - Enter `audio` as the Mime-type
   - Enter `vnd.rn-realaudio` as the Mime SubType.
3. Click **OK**.
4. Enter `rm, ra, ram` in the **Extensions** field.
5. Next, select the **Launch Application** option. Browse and find the directory in which RealPlayer Plus is installed. (By default, the RealPlayer Plus is installed in `c:\Program Files\Real\RealPlayer\`)
6. Select RealPlayer Plus (**realplay.exe**) as the application to launch.

For more specific information about browsers or specific services (e.g. AOL), please refer to the following page on our tech support site: **http://service.real.com/help/faq/index.html**.

Macintosh

Internet Explorer 4.01 or later

1. Launch IE 4.x after installing the RealPlayer G2 for Macintosh.
2. Click on the **Preferences** menu.
3. Under **Receiving files**, click **File Helpers**.
4. Click **Add**.
5. Enter the following information in the appropriate box:
   a. **Description:** RealAudio
   b. **Extension:** `ra, rm, ram`
   c. **Mime Type:** `audio/x-pn-realaudio`
6. Under **File Type**, browse to the RealPlayer Plus icon and click **Open**.
7. In the **File Type** field, type `PNRM`.
8. In the **File creator** field, type `PNst`.
9. For encoding, select **Binary Data**.
10. Check **Use for Incoming** and **Use for outgoing** boxes.
11. Under **How to handle**, select **View with application**.
12. Click **Browse**.
13. Navigate to the RealPlayer or RealPlayer application icon and click on **Open**.
14. Click **OK**.

Microsoft Internet Explorer 4.01 should now be configured to use RealPlayer Plus G2. You may have to rebuild the Macintosh desktop for these preferences to take effect. To rebuild the desktop file on a Macintosh, shut the system off, then start it up, holding down the **Option** and **Command** keys.

Netscape

1. Start Netscape Navigator and select the **General Preferences** menu items from the **Edit** menu.

2. Select **Applications** from the Category listing on the left side of the screen.
3. Select **New** and enter the following information in the appropriate box:
   a. **Description:** RealAudio
   b. **Mime Type:** x-pn-realaudio
   c. **Suffixes:** ra, rm, ram
4. Select the **Application** radio button.
5. Click **Choose** and find the directory that the RealPlayer was installed (the default is the Real folder on your startup volume)
6. Select **RealPlayer** as the application to launch.
7. Select **PNst** in the **File type** drop-down menu.
8. Select **OK**.

You may also have to manually configure the Plugin for the RealPlayer Plus:

1. Start Netscape Navigator and select **Preferences** from the **Options** menu.
2. Select **Applications** from the Category listing on the left side of the screen.
3. Select **New** and enter the following information in the appropriate box:
   a. **Description:** audio/x-pn-realaudio-plugin
   b. **Mime Type:** audio/x-pn-realaudio-plugin
   c. **Suffixes:** rpm
4. Choose the **Plug-in** radio button and select **RealPlayer plugin** in the drop-down menu.
5. Select **OK**.

If, after having reinstalled the RealPlayer or reconfiguring the browser for the RealPlayer, the browser continues to have problems launching RealPlayer, you should rebuild the desktop file. To rebuild the desktop file on a Macintosh, shut off the system, then start it up, holding down the **Option** and **Command** keys at the same time.

More specific information about various browsers and services (such as AOL) are available in the FAQ (Frequently Asked Questions) section of Tech Support at **http://service.real.com/faq/**.

Why can't I play clips on my computer at work?

If you're on a local area network which is attached to the Internet, and are unable to play RealMedia files from remote web sites, it's possible that your company's firewall is preventing the stream from reaching you. Users can receive live and on-demand audio and video from the Internet without exposing their company's network to security risks.

If your computer is behind a firewall, please see RealNetworks' firewall page for more information: **http://service.real.com/firewall**

Why does RealPlayer Plus use the wrong ISP?

When attempting to connect automatically to the Internet, RealPlayer Plus will select your default Internet connection. If you have more than one Internet Service Provider (ISP), RealPlayer Plus may be selecting the wrong one.

To change your default ISP in Windows:

1. Choose **Settings/Control Panel** from your **Start** button.
2. Double-click **Internet**.
3. Click the **Connection** tab. (If you have IE4 click the **Settings** tab.)
4. Change the **Dial-up Connection** setting to your preferred ISP.
5. Click **Apply**.

To change your default ISP on Macintosh:

1. Open the **Remote Access** control panel from the Apple Menu.
2. Select **Configurations.**
3. Choose the appropriate ISP.
4. Click **Make Active.**
5. Click **Done**.
6. Open the **TCP/IP** control panel from the Apple Menu.
7. Enter the appropriate information for the ISP
8. Click **Done**.

Other Problems

How can I stop RealPlayer Plus from loading on start-up [Windows only]?

When RealPlayer Plus is installed it adds a shortcut icon in your system tray (the area that shows you the date and time opposite the **Start** button). The icon keeps RealPlayer in idle mode so that it is quickly available should you click on a file that requires RealPlayer and allows your Channel Headlines to automatically update while you maintain a connection to the Internet. Additionally this icon allows you to function on clips that are currently playing even if the player is minimized. To see these functions, right-click the RealPlayer icon in your system tray.

If you wish you remove the icon from your system tray:

1. Right-click (or left-click if you swap your mouse buttons) the icon
2. Select **Close StartCenter** or **Disable StartCenter**.

If you select **Disable StartCenter**, RealPlayer Plus will no longer load when you start Windows. Closing StartCenter will only disable the feature for the current Windows session. StartCenter will load RealPlayer Plus the next time you reboot Windows.

To have RealPlayer load in the system tray on start-up again:

1. Select **Options/Preferences...** from your RealPlayer menus.
2. Click the **General** tab.
3. Click **Allow StartCenter to run in the system tray**.
4. RealPlayer will add StartCenter back to your system tray.

What types of files can RealPlayer Plus play?

RealPlayer Plus G2 plays a wider variety of media both locally and over the Internet than previous versions. The chart below hightlights most of the current file-types that can be played.

Only RealAudio, RealVideo, MP3, RealFlash, RealText, and RealPix are in the initial RealPlayer Plus download. As you attempt to play different content, RealPlayer Plus will expand its capability to fit your individual needs.

New modules are being added all the time to expand RealPlayer Plus's abilities for you. If you click on a file that RealPlayer can't currently play, it will check

with RealNetworks to see if a module exists that it can download and install it so you will be able to to play the file (see Upgrade Preferences on page 53 and AutoUpdate in your on-line Help.).

RealPlayer Plus File-types

File Extension:	File-type:
RM, RA, RAM	RealAudio/RealVideo streamed content
RT	RealText streamed text formats
RP	RealPix streamed GIF and JPG ("j-peg") images
MP3	MPEG Layer 3 audio format
SWF	RealFlash and Shockwave Flash animation
SMIL, SMI	SMIL files (see SMIL on page 44)
WAV, AU, AIFF	'Legacy' sound files—older but prevalent filetypes
MPG, MPEG	Standard MPEG Layer 1 video and Layer 2 audio formats
QT, MOV	Quicktime Movies (uncompressed)
AVI	Audio/Video Interleave—Microsoft video format
ASF	NetShow files (newer NetShow files may not play correctly)
MID, MIDI, RMI	'MIDI' sound files
VIV, VIVO	Vivo video files
GIF, JPG	Stand alone JPG and GIF images and animated GIFs

To see which components you currently have installed:

1. Select **Options/Preferences...**
2. Click the **Upgrade** tab.
3. The currently installed plug-ins will be listed the **RealPlayer** section of the tab. You can remove a plug-in by highlighting it and clicking **Remove**.

KEYBOARD SHORTCUTS

WINDOWS

Hot Key	Action	Hot Key	Action
CTRL+Left Arrow	Rewind (.5sec/keystroke)	CTRL+L	Open Location
CTRL+Right Arrow	Fast Forward (.5sec/keystroke)	CTRL+O	Open Local File
CTRL+SHIFT+ Left Arrow	Super Rewind (10sec/keystroke)		
CTRL+SHIFT+ Right Arrow	Super Fast Forward (10sec/keystroke)	CTRL+H	Open Search
CTRL+Up Arrow	Volume Up		
CTRL+Down Arrow	Volume Down	CTRL+N	Normal View
CTRL+P	Play/Pause	CTRL=M	Compact View
CTRL+S	Stop	CTRL+A	Add to Presets
CTRL+R	Record	CTRL+SHIFT+A	Save Current Place
PgUp	Previous Clip		
PgDown	Next Clip	F1	Help Contents
		ALT+F4	Exit Program

CTRL= Control key

ALT = Alt Key

SHIFT = Left or Right Shift Key

"+" = use the listed keys in combination at the same time. For instance "CTRL+A" directs you to hold down the Control key and press the letter "A" on you keyboard at the same time.

MACINTOSH

Hot Key	Action	Hot Key	Action
CMD+Left Arrow	Rewind (.5sec/keystroke)	CMD+L	Open Location
CMD+Right Arrow	Fast Forward (.5sec/keystroke)	CMD+O	Open Local File
CMD+SHIFT+ Left Arrow	Super Rewind (10sec/keystroke)		
CMD+SHIFT+ Right Arrow	Super Fast Forward (10sec/keystroke)	CMD+H	Open Search
CMD+Up Arrow	Volume Up		
CMD+Down Arrow	Volume Down	CMD+N	Normal View
CMD+P	Play/Pause	CMD=M	Compact View
CMD+S	Stop	CMD+A	Add to Presets
CMD+R	Record	CMD+SHIFT+A	Save Current Place
CMD+ [	Previous Clip		
CMD+]	Next Clip	F1	Help Contents
		CMD+Q	Exit Program

CMD= Command key

SHIFT = Left or Right Shift Key

"+" = use the listed keys in combination at the same time. For instance "CMD+A" directs you to hold down the Command key and press the letter "A" on you keyboard at the same time.

GLOSSARY

The following pages contain a list of terms defined specifically for RealPlayer Plus G2. While some of these concepts may have broader meanings and implications, the defintions in this Glossary relate directly to your use of the RealPlayer Plus G2 rather than the world or Internet at large.

A

accessory:
A part of the RealPlayer Plus that is not necessary to its main function, but that enhances your experience during playback (e.g., the Equalizer).

Audio Analyzer:
A tool that analyzes the audio coming into RealPlayer and displays it visually on the Display Panel.

B

background:
When a process is set to run "in the background" no visual cue will alert you to the process. During a background process, you can continue to work normally.

bandwidth:
The amount of data that can be sent to your computer over a short time, usually expressed as kilobytes per second (Kbps). The higher the bandwidth, the faster you receive data—very much like using a larger garden hose to get more water faster. Sometimes this is shortened to "band" as in the "16-band bar-graph Equalizer". In this case, the range of sound that is measurable is broken into equal portions, or bands, of sound to be displayed.

bar:
A portion of the RealPlayer Plus interface that can be rearranged vertically and is only a single line tall (e.g., the Clip Info bar).

bit(s):
A single smallest piece of information. Often used synonymously for *packets* when talking about the Internet even though they are not actually the same thing. Packets are actually made up of bits, bits being a lower level of structure just as atoms are what make up bricks. (See also *packets*.)

browser:
Short term for Internet browser (e.g., Netscape, Opera, or Internet Explorer).

buffered:
Data that is collected but held back rather than made immediately available. Similar to a translator on the news listening to a whole statement before telling you what the speaker has said, rather than trying to give you a less accurate, halting, word-by-word translation.

channel:
Represented by an icon in the Channels tab, it is a quick link to a service (news, sports, etc.). Channels also update headlines from the service they're associated with on a regular basis when connected to the Internet.

Channels tab
The portion of the Content Panel that displays Channels.

clip:
Any media that can play within RealPlayer.

Clip Info bar:
Displays Title, Author, Copyright information about the active clip.

compiled:
Term describing a file when the raw information, or source-code, has been organized into a usable format for your desktop (eg., DLL, EXE, and COM file-types).

Content Panel:
Opposite the Display Panel. Both the Channels tab and the Visual Presets tab are displayed on this panel.

Control bar:
The portion of the RealPlayer that contains the controls that act on the active clip (e.g., Play, Pause, Stop, etc.) as well as the position slider, the Equalizer, and any plug-ins or RealPlayer Add-ins (RPA's).

datatype:
Determined by the program that creates the media you are viewing and usually distinguished by the extension on the end of the file (eg., AVI, WAV, RM, RMA, etc.)

DirectX:
A compilation of interpreters created by Microsoft that allow sound and video to work faster in Windows95 or later and Windows NT 4 or later.

Display Panel:
Opposite the Content Panel. Used to display visual elements of a clip as well as the Audio Analyzer and controls for Volume, Zoom, and Display.

Display controls:
Controls for Contrast, Brightness, Color Level, Tint, and Sharpness for visual presentations. Located beneath the Zoom control on the Display Panel. Not all visual presentations support Display controls. They will only be available if the clip supports the controls.

electronic certificates:
Electronic certificates are digital fingerprints. Each file carries a special code identifying it as officially

sanctioned and approved by RealNetworks to work with your RealPlayer Plus.

encode:
The process of converting media (sound, video, etc.) so it can be streamed to and played by RealPlayer Plus.

equalizer:
see graphic equalizer.

firewall:
Security devices used to protect companies from unauthorized access to their servers. A firewall ensures that all communication between an organization's network and the Internet conform to the organization's security policies, using either proxy services or packet filtering.

graphic equalizer:
Divides the sound input into smaller ranges of tones. This lets you adjust each range of sound to fit your preferences rather than just the high or low frequencies, as typical treble and bass buttons do.

HTTP:
Hyper Text Transport Protocol. A standard language for pushing information across the Internet and a good fall-back to use, though with reduced quality, when your company employs a firewall that blocks other protocols.

ISP:
Internet Service Provider. The company or service you connect to in order to surf the Internet.

IP:
Internet Protocol. Part of the TCP/IP group of information languages (see TCP/IP).

IP address:
Internet address of another computer in number format (e.g., 127.0.0.1).

ISP:
Internet Service Provider. The service you use to connect to the Internet.

media:
A general term that includes any visual, audio or text transmission.

mode:
A specific instance or view of a single tool. For instance, Bar Graph mode Analyzer versus Wave mode.

multicast:
Used for broadcasting large events over the Internet. Allows a single computer to create the content (concert, film, etc.) and many computers to play the same single stream simultaneously.

multi-clip:
Any sequential string of clips RealPlayer Plus plays from a single file.

packet:
A single package of data sent to a computer. Similar to a single brick in a building. (See also *bits*.)

panel:
Any one of the separate areas of RealPlayer Plus. Each is separated by lines on the top and bottom and has a grabbable double bar on the side that allows you to change the top to bottom order you see in your Player.

peaks:
The highest level for a particular sound at a given point in time. Used when viewing the Wave mode Analyzer.

Playlist bar:
Displays the name of the current clip within a multi-clip (see multi-clip).

plug-in:
A component of the RealPlayer Plus that extends its ability.

PNM or PNA:
Progressive Networks Media (Audio). The previous standard protocol for streaming media to your RealPlayer Plus.

preset:
A quick button to reach conent on the Internet, similar to the station buttons on a car or home stereo.

protocol:
Language used by computers to talk to each other or to their own hardware. In the case of two computers, they must speak the same language to understand each other. The standard Internet protocol is TCP/IP (see TCP/IP). Synonomous with *transport*.

proxy:
Used in conjunction with a firewall , a proxy or proxy service is a server that acts as an intermediary to first determine if a requested connection between a computer on the internal network and one on the outside is permitted. If the connection is authorized, the firewall sets up the necessary communication links between the two computers. The firewall can then monitor the communication between the two networks and suppress any unauthorized activity.

RPA:
RealPlayer Add-in. Authorized third-party program additions that give you access to other media or functions.

RealMedia:
Any media that is specifically created to be streamed from RealServer to your computer.

RTSP:
Real Time Streaming Protocol. The newest protocol used to stream media to your RealPlayer over the Internet.

sampling rate:
How many times a sample of sound is taken over a specific period of time.

server
Any machine or program that is "serving" information to another machine or program.

Status bar:
Portion of RealPlayer Plus that displays connection and other information about the currently active clip.

streaming:
When a large media file (audio, video, etc.) is broken into smaller pieces so it can viewed or heard immediately rather than forcing the audience to have to wait for the whole file to be downloaded first.

TCP:
Transmission Control Protocol. Part of the TCP/IP group of information languages. More reliable than UDP, but often slower.

TCP/IP:
Transmission Control Protocol/Internet Protocol. Standard protocol used by the Internet to send information back and forth.

transport:
How data is broken up and sent to your computer over the Internet or your company's intranet or network. Usually used in conjuction with or instead of *protocol*. Most machines will only recognize a single type of transport, though this is not always the case. Synonomous with *protocol*.

troughs:
The lowest level for a particular sound at a given point in time. Used when viewing the Wave mode Analyzer.

UDP:
User Datagram Protocol. Part of the TCP/IP group of information languages. Similar to, but less reliable than, TCP, though often faster.

URL:
Uniform Resource Locator. This is the complete address that tells your browser and your RealPlayer Plus where to get the information to show or play (eg. HTTP://, RTSP ://, PNM://, etc.)

Visual Presets tab:
A portion of the Content Panel that displays Presets.